

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 11.04.96
Test oil : ISO 4113
Combination No. : 9 400 085 394
Injection pump
Pump designation : PES6A95D320RS2896
EP type number : 9 400 084 041
Governor
Governor design. : RSV375...1150A0C834R
Governor no. : 9 420 083 306
Cust. part No. : 82085600

Customer-spec. information
Customer : VALMET
Motor : 620 DS
Power KW : 110.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde assembly : 0 681 343 009
Opening pressure bar : 173.5
Tolerance bar : +- 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

A01

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0
Prestroke mm : 2.70
Tolerance mm : +- 0.05
Check tolerance mm : +- 0.10
Rack travel in mm : 10.50
Tolerance mm : +- 1.50
Firing order : 1- 5- 3- 6- 2- : 4
Phasing : 0-60-120-180-240 : -300

Beginning of delivery differende

and maximum rack travel : 10.50
Tolerance mm : +- 1.50
Difference ° CS : 4.20

BASIC SETTING

Rated speed rpm : 1150
Rack travel in mm : 11.05
Tolerance mm : +- 0.05
Del. quantity cm3/1000 strokes : 87.5
Tolerance cm3/1000 strokes : +- 1.0
Check tolerance cm3/1000S. : +- 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.5

Spread
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
Rack travel in mm : 0.65
Tolerance mm : +- 0.35
governor spring
pre-tension
click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 87.5
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 3.0
Spread
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 37.0
tolerance degree : +- 4.0

control lever
position degree : 87.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 10.00
Rated speed rpm : 1185
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1245
Tolerance 1/min : +- 15

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1360

LOW IDLE

control lever
position degree : 66.0
tolerance degree : +- 4.0

control lever
position degree : 16.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 375
rack travel mm : 4.20

Testing:

Rated speed rpm : 375
rack travel mm : 4.70
Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 450
Tolerance 1/min : +- 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL :

Rated speed rpm : 1150
rack travel mm : 11.05

Tolerance mm : +- 0.05
Rated speed rpm : 700
rack travel mm : 11.45
Tolerance mm : +- 0.05

Rated speed rpm : 930
rack travel mm : 11.45
Tolerance mm : +- 0.05

Rated speed rpm : 1030
rack travel mm : 11.05
Tolerance mm : +- 0.05

Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 86.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.0

BREAKAWAY

Rack travel in mm : 10.00
Rated speed rpm : 1185
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : +- 1.00
Del. quantity
cm³/1000 strokes : 196.0
Tolerance
cm³/1000 strokes : +- 8.0
Check tolerance
cm³/1000S. : +- 11.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 16.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 334
Injection pump
Pump designation : PES6P110A720RS3149
EP type number : 9 400 087 045
Governor
Governor design. : RQV350...1300PA772
Governor no. : 9 420 080 209

Cust. part No. :

Customer-spec. information
Customer : FORD
Motor : 6,6L TC
Power KW : 121.4

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holder assembly : 1 688 901 017
Opening pressure bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

A04

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.30
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.15
Tolerance mm : + 0.05

Del. quantity cm³/1000 strokes : 106.0

Tolerance cm³/1000 strokes : + 1.0

Check tolerance cm³/1000S. : + 4.0

Speed Tolerance cm³/1000 strokes : 5.0

Check tolerance cm³/1000S. : 9.0

Del. quantity
 cm³/1000 strokes : 18.0
 Tolerance
 cm³/1000 strokes : +- 2.0
 Check tolerance
 cm³/1000S. : +- 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1300
 guide sleeve
 travel mm : 7.25
 Tolerance mm : +- 0.05

Rated speed rpm : 500
 guide sleeve
 travel mm : 2.50
 Tolerance mm : +- 0.20

Rated speed rpm : 1000
 guide sleeve
 travel mm : 5.15
 Tolerance mm : +- 0.15

Rated speed rpm : 800
 guide sleeve
 travel mm : 4.15
 Tolerance mm : +- 0.15

Rated speed rpm : 350
 guide sleeve
 travel mm : 0.95
 Tolerance mm : +- 0.35

GUIDE SLEEVE POSITION

Rated speed rpm : 1350
 Rack travel in mm : 16.50
 Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
 Aneroid pressure
 hPa : 1000

Del. quantity
 cm³/1000 strokes : 106.0
 Tolerance
 cm³/1000 strokes : +- 1.0
 Check tolerance
 cm³/1000S. : +- 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 65.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 12.10
 Rated speed rpm : 1365
 Tolerance 1/min : +- 5

rack travel mm : 4.00
 Rated speed rpm : 1520
 Tolerance 1/min : +- 15

rack travel mm : 0.50
 Tolerance mm : +- 0.50
 Rated speed rpm : 1650

LOW IDLE

control lever
 position degree : 13.0
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 350
 rack travel mm : 7.30
 Tolerance mm : +- 0.10

rack travel mm : 2.00
 Rated speed rpm : 630
 Tolerance 1/min : +- 30

Rated speed rpm : 100

CRT mm min. : > 9.00

Rated speed rpm : 405

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 13.15
Tolerance mm : +- 0.05

Rated speed rpm : 800
rack travel mm : 13.15
Tolerance mm : +- 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 13.15
Tolerance mm : +- 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 11.65
Tolerance mm : +- 0.05

Rated speed rpm : 500

Pressure hPa : 500
rack travel mm : 12.10
Tolerance mm : +- 0.10

Pressure hPa : 700
rack travel mm : 12.75
Tolerance mm : +- 0.05

START CUT-OUT

Rated speed rpm : > 230
Rated speed rpm : < 290

Check speed 1/min : > 210
Check speed 1/min : < 310

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1000
Rated speed rpm : 800
Del. quantity cm³/1000 strokes : 104.0

A06

Tolerance cm³/1000 strokes : +- 2.0
Check tolerance cm³/1000S. : +- 4.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 77.5
Tolerance cm³/1000 strokes : +- 1.0
Check tolerance cm³/1000S. : +- 4.0

BREAKAWAY

Rack travel in mm : 12.10
Rated speed rpm : 1365
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : +- 0.50
Del. quantity cm³/1000 strokes : 110.0
Tolerance cm³/1000 strokes : +- 10.0
Check tolerance cm³/1000S. : +- 14.0

LOW IDLE

Del. quantity cm³/1000 strokes : 18.0
Tolerance cm³/1000 strokes : +- 2.0
Check tolerance cm³/1000S. : +- 4.5
Speed Tolerance cm³/1000 strokes : 3.5
Check tolerance cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 337
Injection pump
Pump designation : PES6P110A72ORS3150
EP type number : 9 400 087 046
Governor
Governor design. : RQV350...1300PA776
: -1
Governor no. : 9 420 080 212
Cust. part No. :

Customer-spec. information

Customer : FORD
Motor : 7,8 L-TC
Power KW : 136.2

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 017
Opening pressure
bar : 208.5
Tolerance bar : +- 1.5
Test Lines : 1 680 750 015
Outside diameter : 6.0

A07

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0
Prestroke mm : 4.30
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10
Rack travel in mm : 10.50
Tolerance mm : +- 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

Beginning of delivery differende

and maximum rack
travel : 10.50
Tolerance mm : +- 1.50
Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 1300
Rack travel in mm : 12.05
Tolerance mm : +- 0.05
Del. quantity
cm³/1000 strokes : 124.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 3.0

<hr/>	
Spreed	
Tolerance	
cm ³ /1000 strokes :	5.0
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Check tolerance	
cm ³ /1000S.	: 9.0
<hr/>	
Del. quantity	
cm ³ /1000 strokes :	23.0
Tolerance	
cm ³ /1000 strokes :	+ 2.0
Check tolerance	
cm ³ /1000S.	: + 4.5
Spreed	
Tolerance	
cm ³ /1000 strokes :	3.5
Check tolerance	
cm ³ /1000S.	: 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1300
guide sleeve	
travel mm	: 7.25
Tolerance mm	: + 0.05
<hr/>	
Rated speed rpm	: 500
guide sleeve	
travel mm	: 2.50
Tolerance mm	: + 0.20
<hr/>	
Rated speed rpm	: 1000
guide sleeve	
travel mm	: 5.15
Tolerance mm	: + 0.15
<hr/>	
Rated speed rpm	: 800
guide sleeve	
travel mm	: 4.15
Tolerance mm	: + 0.15
<hr/>	
Rated speed rpm	: 350
guide sleeve	
travel mm	: 0.95
Tolerance mm	: + 0.35

GUIDE SLEEVE POSITION

Rated speed rpm	: 1350
<hr/>	
Rack travel in mm	: 16.50
Tolerance mm	: + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1300
Aneroid pressure	
hPa	: 600
Del. quantity	
cm ³ /1000 strokes :	124.0
Tolerance	
cm ³ /1000 strokes :	+ 1.0
Check tolerance	
cm ³ /1000S.	: + 3.0
Spreed	
Tolerance	
cm ³ /1000 strokes :	5.0
Check tolerance	
cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 62.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 11.00
Rated speed rpm	: 1365
Tolerance 1/min	: + 5
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rack travel mm	: 4.00
Rated speed rpm	: 1485
Tolerance 1/min	: + 15
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1600

LOW IDLE

control lever	
position degree	: 15.0
tolerance degree	: + 4.0

Testing:

Rated speed rpm	: 350
rack travel mm	: 7.50
Tolerance mm	: + 0.10
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rack travel mm	: 2.00
Rated speed rpm	: 660
Tolerance 1/min	: + 30

Rated speed rpm : 100
CRT mm min. : > 9.50
Rated speed rpm : 405

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 12.05
Tolerance mm : ± 0.05

Rated speed rpm : 800
rack travel mm : 12.35
Tolerance mm : ± 0.05

Rated speed rpm : 900
rack travel mm : 12.35
Tolerance mm : ± 0.05

Rated speed rpm : 1015
rack travel mm : 12.15
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 600
rack travel mm : 12.35
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 11.35
Tolerance mm : ± 0.05

Rated speed rpm : 500

Pressure hPa : 335
rack travel mm : 12.10
Tolerance mm : ± 0.10

Pressure hPa : 245
rack travel mm : 11.65
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 230
Rated speed rpm : < 290

Check speed 1/min : > 210
Check speed 1/min : < 310

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 600
Rated speed rpm : 800
Del. quantity cm³/1000 strokes : 103.0
Tolerance cm³/1000 strokes : ± 2.0
Check tolerance cm³/1000S. : ± 4.0

Aneroid pressure hPa : 600
Rated speed rpm : 900
Del. quantity cm³/1000 strokes : 109.5
Tolerance cm³/1000 strokes : ± 2.0
Check tolerance cm³/1000S. : ± 4.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 70.5
Tolerance cm³/1000 strokes : ± 1.0
Check tolerance cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 11.00
Rated speed rpm : 1365
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 0.50
Del. quantity cm³/1000 strokes : 160.0
Tolerance cm³/1000 strokes : ± 10.0
Check tolerance cm³/1000S. : ± 14.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 354
Injection pump
Pump designation : PES6P110A720RS3158
EP type number : 9 400 087 049
Governor
Governor design. : RQV350...1300PA787
Governor no. : 9 420 080 218

Cust. part No. :

Customer-spec. information
Customer : FORD
Motor : 6,6 L-TC
Power KW : 125.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holder assembly : 1 688 901 017
Opening pressure bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.30
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

Beginning of delivery difference and maximum rack travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.00

BASIC SETTING

Rated speed rpm : 1300
Rack travel in mm : 11.65
Tolerance mm : ± 0.05
Del. quantity cm³/1000 strokes : 113.5
Tolerance cm³/1000 strokes : ± 1.0
Check tolerance cm³/1000s. : ± 3.0

<hr/>	
Spreed	
Tolerance	
cm ³ /1000 strokes :	5.0
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Check tolerance	
cm ³ /1000S.	: 9.0
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Del. quantity	
cm ³ /1000 strokes :	22.0
Tolerance	
cm ³ /1000 strokes :	+ 2.0
Check tolerance	
cm ³ /1000S.	: + 4.5
Spreed	
Tolerance	
cm ³ /1000 strokes :	3.5
Check tolerance	
cm ³ /1000S.	: 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	1300
guide sleeve	
travel mm :	7.25
Tolerance mm :	+ 0.05
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Rated speed rpm :	500
guide sleeve	
travel mm :	2.50
Tolerance mm :	+ 0.20
<hr/>	
Rated speed rpm :	1000
guide sleeve	
travel mm :	5.15
Tolerance mm :	+ 0.15
<hr/>	
Rated speed rpm :	800
guide sleeve	
travel mm :	4.15
Tolerance mm :	+ 0.15
<hr/>	
Rated speed rpm :	350
guide sleeve	
travel mm :	0.95
Tolerance mm :	+ 0.35

GUIDE SLEEVE POSITION

Rated speed rpm :	1350
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Rack travel in mm :	16.50
Tolerance mm :	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1300
Aneroid pressure	
hPa :	-
Del. quantity	
cm ³ /1000 strokes :	113.5
Tolerance	
cm ³ /1000 strokes :	+ 1.0
Check tolerance	
cm ³ /1000S.	: + 3.0
Spreed	
Tolerance	
cm ³ /1000 strokes :	5.0
Check tolerance	
cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever	
position degree :	62.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	10.60
Rated speed rpm :	1365
Tolerance 1/min :	+ 5
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rack travel mm :	4.00
Rated speed rpm :	1485
Tolerance 1/min :	+ 15
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rack travel mm :	0.50
Tolerance mm :	+ 0.50
Rated speed rpm :	1600

LOW IDLE

control lever	
position degree :	15.0
tolerance degree :	+ 4.0

Testing:

Rated speed rpm :	350
rack travel mm :	7.80
Tolerance mm :	+ 0.10
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rack travel mm :	2.00
Rated speed rpm :	720
Tolerance 1/min :	+ 30

Rated speed rpm : 100
CRT mm min. : > 9.50
Rated speed rpm : 405

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 11.65
Tolerance mm : +- 0.05

Rated speed rpm : 800
rack travel mm : 12.15
Tolerance mm : +- 0.05

Rated speed rpm : 900
rack travel mm : 12.10
Tolerance mm : +- 0.10

Rated speed rpm : 1050
rack travel mm : 11.85
Tolerance mm : +- 0.05

START CUT-OUT

Rated speed rpm : > 230
Rated speed rpm : < 290

Check speed 1/min : > 210
Check speed 1/min : < 310

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 97.5
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 103.5
Tolerance
cm³/1000 strokes : +- 2.5
Check tolerance
cm³/1000S. : +- 4.5

BREAKAWAY

Rack travel in mm : 10.60
Rated speed rpm : 1365
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : +- 0.50
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 14.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 367
Injection pump
Pump designation : PES6P110A72ORS3151
EP type number : 9 400 087 047
Governor
Governor design. : RQV350...1200PA777
: -1
Governor no. : 9 420 080 234
Cust. part No. :

Customer-spec. information
Customer : FORD
Motor : 7,8 L TC
Power KW : 165.6

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 017
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 015
Outside diameter : 6.0

A14

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 1200
Rack travel in mm : 14.15
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 142.5
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 3.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 9.0

Del. quantity
 cm³/1000 strokes : 18.0
 Tolerance
 cm³/1000 strokes : ± 2.0
 Check tolerance
 cm³/1000S. : ± 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1300
 guide sleeve
 travel mm : 7.25
 Tolerance mm : ± 0.05

Rated speed rpm : 500
 guide sleeve
 travel mm : 2.50
 Tolerance mm : ± 0.20

Rated speed rpm : 1000
 guide sleeve
 travel mm : 5.15
 Tolerance mm : ± 0.15

Rated speed rpm : 800
 guide sleeve
 travel mm : 4.15
 Tolerance mm : ± 0.15

Rated speed rpm : 350
 guide sleeve
 travel mm : 0.95
 Tolerance mm : ± 0.35

GUIDE SLEEVE POSITION

Rated speed rpm : 1350
 Rack travel in mm : 16.50
 Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 800

Del. quantity
 cm³/1000 strokes : 142.5
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 3.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 60.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.10
 Rated speed rpm : 1265
 Tolerance 1/min : ± 5

rack travel mm : 4.00
 Rated speed rpm : 1440
 Tolerance 1/min : ± 15

rack travel mm : 0.50
 Tolerance mm : ± 0.50
 Rated speed rpm : 1600

LOW IDLE

control lever
 position degree : 15.0
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350
 rack travel mm : 7.50
 Tolerance mm : ± 0.10

rack travel mm : 2.00
 Rated speed rpm : 650
 Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 9.00

Rated speed rpm : 405

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 14.15
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 14.15
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 800
rack travel mm : 14.15
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 12.15
Tolerance mm : \pm 0.05

Rated speed rpm : 500

Pressure hPa : 390
rack travel mm : 12.70
Tolerance mm : \pm 0.10

Pressure hPa : 580
rack travel mm : 13.75
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 230
Rated speed rpm : $<$ 290

Check
speed 1/min : $>$ 210
Check
speed 1/min : $<$ 310

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 120.0

Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 74.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 13.10
Rated speed rpm : 1265
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 449EB
Injection pump
Pump designation : PES6P120A320/3RS3264
EP type number : 9 400 087 075
Governor
Governor design. : RQV350...1100PA973
Governor no. : 9 420 080 293
Cust. part No. : 3355296-VERSA041

Customer-spec. information
Customer : CUMMINS
Motor : 6 CTA - 8.3 L
Power KW : 194.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holder assembly : 1 688 901 019
Opening pressure bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.50
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 1100
Rack travel in mm : 11.05
Tolerance mm : ± 0.05
Del. quantity cm³/1000 strokes : 190.0
Tolerance cm³/1000 strokes : ± 1.0
Check tolerance cm³/1000s. : ± 4.0
Speed Tolerance cm³/1000 strokes : 5.0
Check tolerance cm³/1000s. : 9.0

Del. quantity
 cm³/1000 strokes : 8.0
 Tolerance
 cm³/1000 strokes : +- 3.0
 Check tolerance
 cm³/1000S. : +- 5.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1150
 guide sleeve
 travel mm : 7.05
 Tolerance mm : +- 0.05

Rated speed rpm : 1400
 guide sleeve
 travel mm : 9.00
 Tolerance mm : +- 0.20

Rated speed rpm : 350
 guide sleeve
 travel mm : 1.60
 Tolerance mm : +- 0.20

Rated speed rpm : 650
 guide sleeve
 travel mm : 4.50
 Tolerance mm : +- 0.20

GUIDE SLEEVE POSITION

Rated speed rpm : 1325
 Rack travel in mm : 16.50
 Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 190.0
 Tolerance
 cm³/1000 strokes : +- 1.0
 Check tolerance
 cm³/1000S. : +- 4.0

A19

Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 55.0
 tolerance degree : +- 4.0

control lever
 position degree : 110.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 10.00
 Rated speed rpm : 1165
 Tolerance 1/min : +- 5

rack travel mm : 4.00
 Rated speed rpm : 1325
 Tolerance 1/min : +- 15

rack travel mm : 0.50
 Tolerance mm : +- 0.50
 Rated speed rpm : 1500

LOW IDLE

control lever
 position degree : 70.0
 tolerance degree : +- 4.0

control lever
 position degree : 15.0
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 350
 rack travel mm : 6.00
 Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 8.00

Rated speed rpm : 500

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.05
Tolerance mm : +- 0.05

Rated speed rpm : 700
rack travel mm : 11.05
Tolerance mm : +- 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 11.05
Tolerance mm : +- 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.00
Tolerance mm : +- 0.10

Rated speed rpm : 500

Pressure hPa : 700
rack travel mm : 10.75
Tolerance mm : +- 0.15

Pressure hPa : 430
rack travel mm : 9.55
Tolerance mm : +- 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 290

Check speed 1/min : > 80
Check speed 1/min : < 310

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1200
Rated speed rpm : 700
Del. quantity cm³/1000 strokes : 189.0
Tolerance cm³/1000 strokes : +- 2.0
Check tolerance cm³/1000S. : +- 5.0

A20

Spread
Tolerance cm³/1000 strokes : 6.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 117.5
Tolerance cm³/1000 strokes : +- 1.5
Check tolerance cm³/1000S. : +- 3.5

BREAKAWAY

Rack travel in mm : 10.00
Rated speed rpm : 1165
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : +- 1.00
Del. quantity cm³/1000 strokes : 275.0
Tolerance cm³/1000 strokes : +- 15.0
Check tolerance cm³/1000S. : +- 19.0

LOW IDLE

Del. quantity cm³/1000 strokes : 8.0
Tolerance cm³/1000 strokes : +- 3.0
Check tolerance cm³/1000S. : +- 5.0
Spread
Tolerance cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 8.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.04.96
Test oil : ISO 4113

Combination No. : 9 400 087 456

Injection pump
Pump designation : PE6P120A720RS7126
EP type number : 0 412 626 815

Governor
Governor design. : RQV200...1050PA725
: -5
Governor no. : 0 421 813 814

Cust. part No. : 1673688

Customer-spec. information
Customer : SCANIA
Motor : DS11

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration damper
(RoBo diaphragm) : 3.1

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde assembly : 1 688 901 019

Opening pressure bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 14.15
Tolerance mm : ± 0.05

Del. quantity cm³/1000 strokes : 231.0

Tolerance cm³/1000 strokes : ± 1.0

Check tolerance cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 225

Rack travel in mm : 4.60
Tolerance mm : +- 0.30

Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : +- 2.0

Check tolerance
cm³/1000S. : +- 5.0

Spread
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 225
guide sleeve
travel mm : 1.40
Tolerance mm : +- 0.20

Rated speed rpm : 1095
guide sleeve
travel mm : 8.30
Tolerance mm : +- 0.10

Rated speed rpm : 350
guide sleeve
travel mm : 2.60
Tolerance mm : +- 0.30

Rated speed rpm : 650
guide sleeve
travel mm : 4.30
Tolerance mm : +- 0.30

Rated speed rpm : 1215
guide sleeve
travel mm : 9.90
Tolerance mm : +- 0.20

GUIDE SLEEVE POSITION

Rated speed rpm : 1200

Rack travel in mm : 10.50

A23

Tolerance mm : +- 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 231.0
Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 62.0
tolerance degree : +- 4.0

control lever
position degree : 117.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 13.10
Rated speed rpm : 1095
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1215
Tolerance 1/min : +- 15

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1320

LOW IDLE

control lever
position degree : 64.0
tolerance degree : +- 4.0

control lever
position degree : 10.0
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 225
rack travel mm : 4.60
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 390
Tolerance 1/min : ± 30

Rated speed rpm : 100
CRT mm min. : > 6.10

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 14.15
Tolerance mm : ± 0.05

Rated speed rpm : 1050
rack travel mm : 14.15
Tolerance mm : ± 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 14.15
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.70
Tolerance mm : ± 0.20

Rated speed rpm : 500

Pressure hPa : 250
rack travel mm : 11.20
Tolerance mm : ± 0.10

Pressure hPa : 510
rack travel mm : 13.05
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900

A24

Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 222.5
Tolerance
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 150.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 13.10
Rated speed rpm : 1095
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 300.0
Tolerance
cm³/1000 strokes : ± 25.0
Check tolerance
cm³/1000S. : ± 29.0

LOW IDLE

Rated speed rpm : 225
rack travel mm : 4.60
Tolerance mm : ± 0.30
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 458
Injection pump
Pump designation : PE6P120A320RS3186
EP type number : 0 411 826 756
Governor
Governor design. : RQV250...1025PA657
: -29
Governor no. : 9 420 080 312
Cust. part No. : 8124324

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : TD102FS
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 046
Inlet press. bar : 2.0
Test nozzle holde
assembly : 1 688 901 019
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 067
Outside diameter : 6.0

A26

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 700
Rack travel in mm : 12.15
Tolerance mm : ± 0.05
Del. quantity
cm3/1000 strokes : 211.0
Tolerance
cm3/1000 strokes : ± 1.0
Check tolerance
cm3/1000S. : ± 4.0
Speed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

Del. quantity
 cm³/1000 strokes : 18.5
 Tolerance
 cm³/1000 strokes : +- 2.5
 Check tolerance
 cm³/1000S. : +- 5.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250
 guide sleeve
 travel mm : 1.20
 Tolerance mm : +- 0.10

Rated speed rpm : 900
 guide sleeve
 travel mm : 6.50
 Tolerance mm : +- 0.20

Rated speed rpm : 500
 guide sleeve
 travel mm : 4.50
 Tolerance mm : +- 0.40

Rated speed rpm : 700
 guide sleeve
 travel mm : 6.50
 Tolerance mm : +- 0.20

Rated speed rpm : 1025
 guide sleeve
 travel mm : 7.55
 Tolerance mm : +- 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1080
 Rack travel in mm : 16.50
 Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1000

Del. quantity
 cm³/1000 strokes : 211.0
 Tolerance
 cm³/1000 strokes : +- 1.0
 Check tolerance
 cm³/1000S. : +- 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 65.0
 tolerance degree : +- 4.0

control lever
 position degree : 120.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.10
 Rated speed rpm : 1090
 Tolerance 1/min : +- 5

rack travel mm : 4.00
 Rated speed rpm : 1160
 Tolerance 1/min : +- 15

rack travel mm : 0.50
 Tolerance mm : +- 0.50
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 63.0
 tolerance degree : +- 4.0

control lever
 position degree : 8.0
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 250
 rack travel mm : 4.00
 Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 5.40

Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 12.15
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 12.15
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 425
rack travel mm : 2.85
Tolerance mm : \pm 0.15

Pressure hPa : 75
rack travel mm : 0.25
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 147.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 11.10
Rated speed rpm : 1090
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 270.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 18.5
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 460AA
Injection pump
Pump designation : PES6P120A720LS7114
: -13
EP type number : 0 412 726 867
Governor
Governor design. : RQ300/1050PA911-3
Governor no. : 9 420 080 314

Cust. part No. :

Customer-spec. information

Customer : MBB
Motor : OM447 LA
Power KW : 260.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Overflow quantity
min. L/h : 110
Tolerance L/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.40
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 195.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
 cm³/1000 strokes : 5.0

 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 6.00
 Tolerance mm : ± 0.20
 Del. quantity
 cm³/1000 strokes : 13.5
 Tolerance
 cm³/1000 strokes : ± 3.0
 Check tolerance
 cm³/1000S. : ± 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 2.95
 Tolerance mm : ± 0.15

 Rated speed rpm : 1100
 guide sleeve
 travel mm : 6.70
 Tolerance mm : ± 0.20

 Rated speed rpm : 600
 guide sleeve
 travel mm : 6.00
 Tolerance mm : ± 0.10

 Rated speed rpm : 1000
 guide sleeve
 travel mm : 6.40
 Tolerance mm : ± 0.10

 Rated speed rpm : 1175
 guide sleeve
 travel mm : 9.75
 Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 600

 Rack travel in mm : 20.00

Tolerance mm : ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1050
 Del. quantity
 cm³/1000 strokes : 195.5
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 40.0
 tolerance degree : ± 4.0

 control lever
 position degree : 101.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.30
 Rated speed rpm : 1103
 Tolerance 1/min : ± 8

 rack travel mm : 4.00
 Rated speed rpm : 1165
 Tolerance 1/min : ± 15

 rack travel mm : 0.75
 Tolerance mm : ± 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 74.0
 tolerance degree : ± 4.0

 control lever
 position degree : 11.0
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.00
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 380
Tolerance 1/min : ± 20

Rated speed rpm : 100
CRT mm min. : > 9.00

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 12.40
Tolerance mm : ± 0.10

Rated speed rpm : 1050
rack travel mm : 12.40
Tolerance mm : ± 0.10

Rated speed rpm : 750
rack travel mm : 12.40
Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

MEASUREMENT

Pressure hPa : 300
rack travel mm : -1.80
Tolerance mm : ± 0.10

Pressure hPa : 400
rack travel mm : -0.90
Tolerance mm : ± 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200

B03

Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 195.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 198.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 126.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

BREAKAWAY

Rack travel in mm : 11.30
Rated speed rpm : 1103
Tolerance 1/min : ± 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : ± 10.0

Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.00
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 13.5
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 463
Injection pump
Pump designation : PES6P120A320/3RS3264
EP type number : 9 400 087 075
Governor
Governor design. : RQV350...1100PA973
: -1
Governor no. : 9 420 080 317
Cust. part No. :

Customer-spec. information
Customer : CUMMINS
Motor : 6 CTAA - 8.3 L
Power KW : 186.4

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 019
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

805

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 1100
Rack travel in mm : 10.55
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 174.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

Del. quantity
 cm³/1000 strokes : 9.5
 Tolerance
 cm³/1000 strokes : ± 3.0
 Check tolerance
 cm³/1000S. : ± 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1150
 guide sleeve
 travel mm : 7.05
 Tolerance mm : ± 0.05

Rated speed rpm : 1400
 guide sleeve
 travel mm : 9.00
 Tolerance mm : ± 0.20

Rated speed rpm : 350
 guide sleeve
 travel mm : 1.60
 Tolerance mm : ± 0.20

Rated speed rpm : 650
 guide sleeve
 travel mm : 4.50
 Tolerance mm : ± 0.20

GUIDE SLEEVE POSITION

Rated speed rpm : 1325

Rack travel in mm : 16.50
 Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 174.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 4.0

B06

Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 55.0
 tolerance degree : ± 4.0

control lever
 position degree : 109.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 9.50
 Rated speed rpm : 1165
 Tolerance 1/min : ± 5

rack travel mm : 4.00
 Rated speed rpm : 1320
 Tolerance 1/min : ± 15

rack travel mm : 0.50
 Tolerance mm : ± 0.50
 Rated speed rpm : 1500

LOW IDLE

control lever
 position degree : 70.0
 tolerance degree : ± 4.0

control lever
 position degree : 15.0
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350
 rack travel mm : 6.00
 Tolerance mm : ± 0.10

Rated speed rpm : 100
 CRT mm min. : > 8.00

Rated speed rpm : 500

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 10.55
Tolerance mm : +- 0.05

Rated speed rpm : 700
rack travel mm : 10.55
Tolerance mm : +- 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 10.55
Tolerance mm : +- 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 740
rack travel mm : 1.10
Tolerance mm : +- 0.10

Pressure hPa : 550
rack travel mm : 0.35
Tolerance mm : +- 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 290

Check
speed 1/min : > 80
Check
speed 1/min : < 310

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm3/1000 strokes : 169.0
Tolerance
cm3/1000 strokes : +- 2.0
Check tolerance
cm3/1000S. : +- 5.5
Spreed

Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 121.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 4.0

BREAKAWAY

Rack travel in mm : 9.50
Rated speed rpm : 1165
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : +- 1.00
Del. quantity
cm3/1000 strokes : 275.0
Tolerance
cm3/1000 strokes : +- 15.0
Check tolerance
cm3/1000S. : +- 19.0

LOW IDLE

Del. quantity
cm3/1000 strokes : 9.5
Tolerance
cm3/1000 strokes : +- 3.0
Check tolerance
cm3/1000S. : +- 6.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 473
Injection pump
Pump designation : PE6P120A320RS3178-1
EP type number : 0 411 826 764
Governor
Governor design. : RQV250...950PA921
: -13
Governor no. : 0 421 813 796
Cust. part No. : 478162P04

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : TD 122 FK,FR
Power KW : 287.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 2 417 413 046
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 019
Opening pressure
bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 3.65
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 700
Rack travel in mm : 14.25
Tolerance mm : + 0.05
Del. quantity
cm3/1000 strokes : 260.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0
Speed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

Del. quantity
 cm³/1000 strokes : 20.0
 Tolerance
 cm³/1000 strokes : ± 2.5
 Check tolerance
 cm³/1000S. : ± 5.5
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250
 guide sleeve
 travel mm : 1.20
 Tolerance mm : ± 0.20

Rated speed rpm : 985
 guide sleeve
 travel mm : 8.30
 Tolerance mm : ± 0.10

Rated speed rpm : 450
 guide sleeve
 travel mm : 3.90
 Tolerance mm : ± 0.30

Rated speed rpm : 700
 guide sleeve
 travel mm : 6.50
 Tolerance mm : ± 0.10

Rated speed rpm : 1060
 guide sleeve
 travel mm : 9.80
 Tolerance mm : ± 0.20

GUIDE SLEEVE POSITION

Rated speed rpm : 1000
 Rack travel in mm : 16.50
 Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1200

Del. quantity
 cm³/1000 strokes : 260.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 65.0
 tolerance degree : ± 4.0

control lever
 position degree : 121.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.20
 Rated speed rpm : 995
 Tolerance 1/min : ± 5

rack travel mm : 4.00
 Rated speed rpm : 1085
 Tolerance 1/min : ± 15

rack travel mm : 0.50
 Tolerance mm : ± 0.50
 Rated speed rpm : 1200

LOW IDLE

control lever
 position degree : 65.0
 tolerance degree : ± 4.0

control lever
 position degree : 10.0
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 250
 rack travel mm : 4.95
 Tolerance mm : ± 0.15

Rated speed rpm : 100

CRT mm min. : > 6.50

Rated speed rpm : 315

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 14.25
Tolerance mm : +- 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 14.25
Tolerance mm : +- 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 865
rack travel mm : 3.80
Tolerance mm : +- 0.10

Pressure hPa : 100
rack travel mm : 0.25
Tolerance mm : +- 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 164.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0

BREAKAWAY

Rack travel in mm : 13.20
Rated speed rpm : 995
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : +- 0.50
Del. quantity
cm³/1000 strokes : 290.0
Tolerance
cm³/1000 strokes : +- 20.0
Check tolerance
cm³/1000S. : +- 24.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : +- 2.5
Check tolerance
cm³/1000S. : +- 5.5
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 475
Injection pump
Pump designation : PES5P120A720LS7280
EP type number : 9 400 087 087
Governor
Governor design. : RQV300...950PA1029
: -6
Governor no. : 9 420 080 360
Cust. part No. : 0240742602

Customer-spec. information
Customer : MBB
Motor : OM 449 LA
Power KW : 220.6

TEST BENCH REQUIREMENTS

Inlet Line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 21.00
Firing order : 1- 3- 5- 4- 2
Phasing : 0-72-144-216-288

BASIC SETTING

Rated speed rpm : 700
Rack travel in mm : 13.45
Tolerance mm : ± 0.05
Del. quantity
cm3/1000 strokes : 245.0
Tolerance
cm3/1000 strokes : ± 1.0
Check tolerance
cm3/1000S. : ± 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
Del. quantity
cm3/1000 strokes : 12.0

Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1050
 guide sleeve
 travel mm : 7.80
 Tolerance mm : + 0.10

Rated speed rpm : 700
 guide sleeve
 travel mm : 5.45
 Tolerance mm : + 0.25

Rated speed rpm : 300
 guide sleeve
 travel mm : 0.75
 Tolerance mm : + 0.25

Rated speed rpm : 500
 guide sleeve
 travel mm : 3.45
 Tolerance mm : + 0.25

Rated speed rpm : 1165
 guide sleeve
 travel mm : 9.45
 Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1120

Rack travel in mm : 16.50
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1300
 Del. quantity
 cm³/1000 strokes : 245.0
 Tolerance
 cm³/1000 strokes : + 1.0

Check tolerance
 cm³/1000S. : + 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 52.0
 tolerance degree : + 4.0

control lever
 position degree : 117.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.50
 Rated speed rpm : 985
 Tolerance 1/min : + 5

rack travel mm : 4.00
 Rated speed rpm : 1125
 Tolerance 1/min : + 15

rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1250

LOW IDLE

control lever
 position degree : 83.0
 tolerance degree : + 4.0

control lever
 position degree : 18.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 5.30
 Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 9.00

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.45
Tolerance mm : ± 0.05

Rated speed rpm : 950
rack travel mm : 13.45
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1300
rack travel mm : 13.45
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 600
rack travel mm : 2.45
Tolerance mm : ± 0.15

Pressure hPa : 400
rack travel mm : 1.10
Tolerance mm : ± 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check speed 1/min : > 80
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1300
Rated speed rpm : 950
Del. quantity cm³/1000 strokes : 241.0
Tolerance cm³/1000 strokes : ± 2.0

Check tolerance cm³/1000S. : ± 5.0
Spreed Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 121.0
Tolerance cm³/1000 strokes : ± 1.0
Check tolerance cm³/1000S. : ± 4.0
Spreed Tolerance cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 9.0

BREAKAWAY

Rack travel in mm : 12.50
Rated speed rpm : 985
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 220.0
Tolerance cm³/1000 strokes : ± 10.0
Check tolerance cm³/1000S. : ± 14.0

LOW IDLE

Del. quantity cm³/1000 strokes : 12.0
Tolerance cm³/1000 strokes : ± 3.0
Check tolerance cm³/1000S. : ± 6.0
Spreed Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.04.96
 Test oil : ISO 4113
 Combination No. : 9 400 087 476
 Injection pump
 Pump designation : PES6P120A720LS7181
 : -10
 EP type number : 0 412 726 870
 Governor
 Governor design. : RQV300...1050PA1055
 Governor no. : 9 420 080 337
 Cust. part No. : 0190741502

Customer-spec. information

Customer : MBB
 Motor : OM447LA
 Power KW : 301.8

TEST BENCH REQUIREMENTS

Inlet line : 4.1
 Test oil inlet
 temp. °C : 40
 Tolerance °C : ± 2.0
 Overflow valve : 1 417 413 025
 Inlet press. bar : 1.5
 Test nozzle holde
 assembly : 1 688 901 105
 Opening pressure
 bar : 208.5
 Tolerance bar : ± 1.5
 Test lines : 1 680 750 075
 Outside diameter : 8.0

x inside diameter : 3.0
 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
 Tolerance bar : ± 1.0
 Prestroke mm : 5.05
 Tolerance mm : ± 0.05
 Check
 tolerance mm : ± 0.10
 Rack travel in mm : 10.50
 Tolerance mm : ± 1.50
 Firing order : 6- 2- 4- 1- 5-
 : 3
 Phasing : 0-60-120-180-240
 : -300

BASIC SETTING

Rated speed rpm : 1050
 Rack travel in mm : 15.15
 Tolerance mm : ± 0.05
 Del. quantity
 cm³/1000 strokes : 266.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

Del. quantity
 cm³/1000 strokes : 14.0
 Tolerance
 cm³/1000 strokes : +- 3.0
 Check tolerance
 cm³/1000S. : +- 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.40
 Tolerance mm : +- 0.20

Rated speed rpm : 1100
 guide sleeve
 travel mm : 7.65
 Tolerance mm : +- 0.25

Rated speed rpm : 500
 guide sleeve
 travel mm : 3.25
 Tolerance mm : +- 0.25

Rated speed rpm : 900
 guide sleeve
 travel mm : 5.85
 Tolerance mm : +- 0.25

Rated speed rpm : 1210
 guide sleeve
 travel mm : 9.55
 Tolerance mm : +- 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1140
 Rack travel in mm : 16.50
 Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 1200

Del. quantity
 cm³/1000 strokes : 266.0
 Tolerance
 cm³/1000 strokes : +- 1.0
 Check tolerance
 cm³/1000S. : +- 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 60.0
 tolerance degree : +- 4.0

control lever
 position degree : 115.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 14.10
 Rated speed rpm : 1095
 Tolerance 1/min : +- 5

rack travel mm : 4.00
 Rated speed rpm : 1195
 Tolerance 1/min : +- 15

rack travel mm : 0.75
 Tolerance mm : +- 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 68.0
 tolerance degree : +- 4.0

control lever
 position degree : 13.0
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 6.00
 Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 8.00

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 15.15
Tolerance mm : ± 0.05

Rated speed rpm : 700
rack travel mm : 15.15
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1200
rack travel mm : 15.15
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 600

Rated speed rpm : 600

Pressure hPa : 820
rack travel mm : 3.85
Tolerance mm : ± 0.15

Pressure hPa : 500
rack travel mm : 1.30
Tolerance mm : ± 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 269.5

Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 133.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

BREAKAWAY

Rack travel in mm : 14.10
Rated speed rpm : 1095
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 260.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 483
Injection pump
Pump designation : PES5P120A720LS7280
EP type number : 9 400 087 087
Governor
Governor design. : RQV300...950PA1029
: -5
Governor no. : 9 420 080 358
Cust. part No. :

Customer-spec. information
Customer : MBB
Motor : OM 449 LA
Power KW : 184.0

TEST BENCH REQUIREMENTS

Inlet Line : 4.1
Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holder assembly : 1 688 901 105
Opening pressure bar : 208.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 075
Outside diameter : 8.0

B20

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.65
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10
Rack travel in mm : 21.00
Firing order : 1- 3- 5- 4- 2
Phasing : 0-72-144-216-288

BASIC SETTING

Rated speed rpm : 600
Rack travel in mm : 12.25
Tolerance mm : ± 0.05
Del. quantity cm3/1000 strokes : 202.5
Tolerance cm3/1000 strokes : ± 1.0
Check tolerance cm3/1000S. : ± 4.0
Spreed Tolerance cm3/1000 strokes : 5.0
Check tolerance cm3/1000S. : 9.0
Del. quantity cm3/1000 strokes : 11.0

Tolerance
 cm³/1000 strokes : +- 3.0
 Check tolerance
 cm³/1000S. : +- 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1050
 guide sleeve
 travel mm : 7.80
 Tolerance mm : +- 0.10

Rated speed rpm : 700
 guide sleeve
 travel mm : 5.45
 Tolerance mm : +- 0.25

Rated speed rpm : 300
 guide sleeve
 travel mm : 0.75
 Tolerance mm : +- 0.25

Rated speed rpm : 500
 guide sleeve
 travel mm : 3.25
 Tolerance mm : +- 0.25

Rated speed rpm : 1165
 guide sleeve
 travel mm : 9.45
 Tolerance mm : +- 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1120

Rack travel in mm : 16.50
 Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 202.5
 Tolerance
 cm³/1000 strokes : +- 1.0

Check tolerance
 cm³/1000S. : +- 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 52.0
 tolerance degree : +- 4.0

control lever
 position degree : 117.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.20
 Rated speed rpm : 1005
 Tolerance 1/min : +- 5

rack travel mm : 4.00
 Rated speed rpm : 1115
 Tolerance 1/min : +- 15

rack travel mm : 0.50
 Tolerance mm : +- 0.50
 Rated speed rpm : 1250

LOW IDLE

control lever
 position degree : 82.0
 tolerance degree : +- 4.0

control lever
 position degree : 17.0
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 5.10
 Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 8.00

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 12.25
Tolerance mm : ± 0.05

Rated speed rpm : 950
rack travel mm : 12.25
Tolerance mm : ± 0.05

**ANEROID/ALTITUDE
COMPENSATOR TEST****SETTING**

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 12.25
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 600
rack travel mm : 2.00
Tolerance mm : ± 0.10

Pressure hPa : 360
rack travel mm : 0.55
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 206.0
Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000s. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 116.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 9.0

BREAKAWAY

Rack travel in mm : 11.20
Rated speed rpm : 1005
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 250.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000s. : ± 14.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 485
Injection pump
Pump designation : PES5P120A720LS7280
EP type number : 9 400 087 087
Governor
Governor design. : RQV300...950PA1029
: -7
Governor no. : 9 420 080 363
Cust. part No. :

Customer-spec. information

Customer : MBB
Motor : OM 449 LA
Power kW : 220.7

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 2.0
Test nozzle holde
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : +- 1.5
Test Lines : 1 680 750 075
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0
Prestroke mm : 4.65
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10
Rack travel in mm : 21.00
Firing order : 1- 3- 5- 4- 2
Phasing : 0-72-144-216-288

BASIC SETTING

Rated speed rpm : 700
Rack travel in mm : 13.75
Tolerance mm : +- 0.05
Del. quantity
cm3/1000 strokes : 263.5
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0
Del. quantity
cm3/1000 strokes : 17.0

Tolerance
 cm³/1000 strokes : ± 3.0
 Check tolerance
 cm³/1000S. : ± 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1050
 guide sleeve
 travel mm : 7.80
 Tolerance mm : ± 0.10

Rated speed rpm : 700
 guide sleeve
 travel mm : 5.45
 Tolerance mm : ± 0.25

Rated speed rpm : 300
 guide sleeve
 travel mm : 0.75
 Tolerance mm : ± 0.25

Rated speed rpm : 500
 guide sleeve
 travel mm : 3.55
 Tolerance mm : ± 0.25

Rated speed rpm : 1165
 guide sleeve
 travel mm : 9.45
 Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1120

Rack travel in mm : 16.50
 Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1300
 Del. quantity
 cm³/1000 strokes : 263.5
 Tolerance
 cm³/1000 strokes : ± 1.0

Check tolerance
 cm³/1000S. : ± 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 52.0
 tolerance degree : ± 4.0

control lever
 position degree : 117.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.70
 Rated speed rpm : 995
 Tolerance 1/min : ± 5

rack travel mm : 4.00
 Rated speed rpm : 1125
 Tolerance 1/min : ± 15

rack travel mm : 0.50
 Tolerance mm : ± 0.50
 Rated speed rpm : 1250

LOW IDLE

control lever
 position degree : 83.0
 tolerance degree : ± 4.0

control lever
 position degree : 18.0
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 5.30
 Tolerance mm : ± 0.10

Rated speed rpm : 100
 CRT mm min. : > 9.00

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.75
Tolerance mm : ± 0.05

Rated speed rpm : 950
rack travel mm : 13.75
Tolerance mm : ± 0.05

**ANEROID/ALTITUDE
COMPENSATOR TEST****SETTING**

Rated speed rpm : 500
Pressure hPa : 1300
rack travel mm : 13.75
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 800
rack travel mm : 2.85
Tolerance mm : ± 0.15

Pressure hPa : 480
rack travel mm : 0.90
Tolerance mm : ± 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1300
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 256.0
Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 121.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

BREAKAWAY

Rack travel in mm : 12.70
Rated speed rpm : 995
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 250.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 486
Injection pump
Pump designation : PES5P120A720LS7329
EP type number : 9 400 087 088
Governor
Governor design. : RQV300...1050PA1055
Governor no. : 9 420 080 337
Cust. part No. : 4750747002

Customer-spec. information
Customer : MBB
Motor : OM449LA
Power KW : 220.8

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Test nozzle holder assembly : 1 688 901 105
Opening pressure bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 5.05
Tolerance mm : + 0.05
Check tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 3- 5- 4- 2
Phasing : 0-72-144-216-288

BASIC SETTING

Rated speed rpm : 1050
Rack travel in mm : 15.15
Tolerance mm : + 0.05
Del. quantity cm3/1000 strokes : 266.0
Tolerance cm3/1000 strokes : + 1.0
Check tolerance cm3/1000S. : + 4.0
Speed Tolerance cm3/1000 strokes : 5.0
Check tolerance cm3/1000S. : 9.0

Del. quantity
 cm³/1000 strokes : 14.0
 Tolerance
 cm³/1000 strokes : +- 3.0
 Check tolerance
 cm³/1000S. : +- 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.40
 Tolerance mm : +- 0.20

Rated speed rpm : 1100
 guide sleeve
 travel mm : 7.65
 Tolerance mm : +- 0.25

Rated speed rpm : 500
 guide sleeve
 travel mm : 3.25
 Tolerance mm : +- 0.25

Rated speed rpm : 900
 guide sleeve
 travel mm : 5.85
 Tolerance mm : +- 0.25

Rated speed rpm : 1210
 guide sleeve
 travel mm : 9.55
 Tolerance mm : +- 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1140
 Rack travel in mm : 16.50
 Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 266.0

C01

Tolerance
 cm³/1000 strokes : +- 1.0
 Check tolerance
 cm³/1000S. : +- 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 60.0
 tolerance degree : +- 4.0

control lever
 position degree : 115.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 14.10
 Rated speed rpm : 1095
 Tolerance 1/min : +- 5

rack travel mm : 4.00
 Rated speed rpm : 1195
 Tolerance 1/min : +- 15

rack travel mm : 0.75
 Tolerance mm : +- 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 68.0
 tolerance degree : +- 4.0

control lever
 position degree : 13.0
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 6.00
 Tolerance mm : +- 0.10

Rated speed rpm : 100
 CRT mm min. : > 8.00

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 15.15
Tolerance mm : ± 0.05

Rated speed rpm : 700
rack travel mm : 15.15
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1200
rack travel mm : 15.15
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 600

Rated speed rpm : 600

Pressure hPa : 820
rack travel mm : 3.85
Tolerance mm : ± 0.15

Pressure hPa : 500
rack travel mm : 1.30
Tolerance mm : ± 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 269.5
Tolerance
cm³/1000 strokes : ± 2.0

C02

Check tolerance
cm³/1000S. : ± 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 133.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

BREAKAWAY

Rack travel in mm : 14.10
Rated speed rpm : 1095
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 260.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 488
Injection pump
Pump designation : PES6P120A720RS3338
EP type number : 9 400 087 089
Governor
Governor design. : RQV350...1150PA923
: -7K
Governor no. : 9 420 080 370
Cust. part No. :

Customer-spec. information

Customer : YULIN
Motor : FNH 7.8L
Power KW : 179.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 072
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

CO4

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 18.0
Tolerance bar : ± 1.0

Prestroke mm : 2.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.65
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 166.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Del. quantity
cm³/1000 strokes : 29.5
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 5.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1200
guide sleeve
travel mm : 9.60
Tolerance mm : +- 0.10

Rated speed rpm : 450
guide sleeve
travel mm : 3.90
Tolerance mm : +- 0.10

Rated speed rpm : 1000
guide sleeve
travel mm : 7.90
Tolerance mm : +- 0.10

Rated speed rpm : 800
guide sleeve
travel mm : 6.60
Tolerance mm : +- 0.20

Rated speed rpm : 350
guide sleeve
travel mm : 2.35
Tolerance mm : +- 0.15

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : 900
Del. quantity
cm³/1000 strokes : 166.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0

C05

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 68.0
tolerance degree : +- 4.0

control lever
position degree : 118.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 12.60
Rated speed rpm : 1215
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1350
Tolerance 1/min : +- 15

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 64.0
tolerance degree : +- 4.0

control lever
position degree : 14.0
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.60
Tolerance mm : +- 0.10

Rated speed rpm : 275
CRT mm min. : > 6.90

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 13.65
Tolerance mm : +- 0.05

Rated speed rpm : 750
rack travel mm : 12.20
Tolerance mm : ± 0.10

Rated speed rpm : 550
rack travel mm : 11.20
Tolerance mm : ± 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1150
Pressure hPa : 900
rack travel mm : 13.65
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1150
rack travel mm : 8.20
Tolerance mm : ± 0.20

Rated speed rpm : 1150

Pressure hPa : 635
rack travel mm : 12.70
Tolerance mm : ± 0.20

Pressure hPa : 365
rack travel mm : 9.65
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 290

Check speed 1/min : > 80
Check speed 1/min : < 310

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 168.0
Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 106.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 12.60
Rated speed rpm : 1215
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.00
Tolerance mm : ± 0.40
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 24.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 29.5
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 5.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 489
Injection pump
Pump designation : PES6P120A72ORS3338
EP type number : 9 400 087 089
Governor
Governor design. : RQV350...1150PA923
 : -8K
Governor no. : 9 420 080 371
Cust. part No. :

Customer-spec. information
Customer : YULIN
Motor : FNH 7.8L
Power KW : 156.6

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 072
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

C08

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
 : 4
Phasing : 0-60-120-180-240
 : -300

BASIC SETTING

Rated speed rpm : 1150
Rack travel in mm : 13.55
Tolerance mm : ± 0.05
Del. quantity
cm3/1000 strokes : 159.5
Tolerance
cm3/1000 strokes : ± 1.0
Check tolerance
cm3/1000S. : ± 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

Del. quantity
 cm³/1000 strokes : 29.5
 Tolerance
 cm³/1000 strokes : ± 3.0
 Check tolerance
 cm³/1000S. : ± 5.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1200
 guide sleeve
 travel mm : 9.60
 Tolerance mm : ± 0.10

Rated speed rpm : 450
 guide sleeve
 travel mm : 3.90
 Tolerance mm : ± 0.10

Rated speed rpm : 1000
 guide sleeve
 travel mm : 7.90
 Tolerance mm : ± 0.10

Rated speed rpm : 800
 guide sleeve
 travel mm : 6.60
 Tolerance mm : ± 0.20

Rated speed rpm : 350
 guide sleeve
 travel mm : 2.35
 Tolerance mm : ± 0.15

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
 Aneroid pressure
 hPa : 900
 Del. quantity
 cm³/1000 strokes : 159.5
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0

Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 71.0
 tolerance degree : ± 4.0

control lever
 position degree : 121.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.50
 Rated speed rpm : 1215
 Tolerance 1/min : ± 5

rack travel mm : 4.00
 Rated speed rpm : 1350
 Tolerance 1/min : ± 15

rack travel mm : 0.50
 Tolerance mm : ± 0.50
 Rated speed rpm : 1420

LOW IDLE

control lever
 position degree : 65.0
 tolerance degree : ± 4.0

control lever
 position degree : 16.0
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350
 rack travel mm : 5.70
 Tolerance mm : ± 0.10

Rated speed rpm : 275
 CRT mm min. : > 6.70

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1150
 rack travel mm : 13.55
 Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 12.50
Tolerance mm : +- 0.10

Rated speed rpm : 550
rack travel mm : 11.50
Tolerance mm : +- 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1150
Pressure hPa : 900
rack travel mm : 13.55
Tolerance mm : +- 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1150
rack travel mm : 8.70
Tolerance mm : +- 0.20

Rated speed rpm : 1150

Pressure hPa : 500
rack travel mm : 12.40
Tolerance mm : +- 0.20

Pressure hPa : 300
rack travel mm : 10.15
Tolerance mm : +- 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 290

Check
speed 1/min : > 80
Check
speed 1/min : < 310

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 168.0
Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 108.5
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.0

BREAKAWAY

Rack travel in mm : 12.50
Rated speed rpm : 1215
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 12.00
Tolerance mm : +- 0.40
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : +- 20.0
Check tolerance
cm³/1000S. : +- 24.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 29.5
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 5.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 15.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 491
Injection pump
Pump designation : PE6P120A720RS3069
EP type number : 0 411 826 712
Governor
Governor design. : RQV300...1000PA1164
Governor no. : 9 420 080 373

Cust. part No. :

Customer-spec. information
Customer : IVECO ARG.
Motor : IVECO 8210.22
Power KW : 224.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 2 417 413 046
Inlet press. bar : 1.5
Test nozzle holde assembly : 1 688 901 019
Opening pressure bar : 208.5
Tolerance bar : +- 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0
Prestroke mm : 3.55
Tolerance mm : +- 0.05
Check tolerance mm : +- 0.10
Rack travel in mm : 10.50
Tolerance mm : +- 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 1000
Rack travel in mm : 12.55
Tolerance mm : +- 0.05
Del. quantity cm3/1000 strokes : 208.5
Tolerance cm3/1000 strokes : +- 1.0
Check tolerance cm3/1000S. : +- 4.0
Spreed Tolerance cm3/1000 strokes : 5.0
Check tolerance cm3/1000S. : 9.0

Del. quantity
 cm³/1000 strokes : 18.0
 Tolerance
 cm³/1000 strokes : +- 3.0
 Check tolerance
 cm³/1000S. : +- 6.0
 Spread
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1050
 guide sleeve
 travel mm : 8.70
 Tolerance mm : +- 0.10

Rated speed rpm : 800
 guide sleeve
 travel mm : 5.95
 Tolerance mm : +- 0.25

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.35
 Tolerance mm : +- 0.25

Rated speed rpm : 450
 guide sleeve
 travel mm : 2.95
 Tolerance mm : +- 0.25

Rated speed rpm : 1150
 guide sleeve
 travel mm : 10.05
 Tolerance mm : +- 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 600
 Del. quantity
 cm³/1000 strokes : 208.5
 Tolerance
 cm³/1000 strokes : +- 1.0
 Check tolerance
 cm³/1000S. : +- 4.0
 Spread
 Tolerance
 cm³/1000 strokes : 5.0

Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 63.0
 tolerance degree : +- 4.0

control lever
 position degree : 117.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.50
 Rated speed rpm : 1045
 Tolerance 1/min : +- 5

rack travel mm : 4.00
 Rated speed rpm : 1140
 Tolerance 1/min : +- 15

rack travel mm : 0.50
 Tolerance mm : +- 0.50
 Rated speed rpm : 1250

LOW IDLE

control lever
 position degree : 68.0
 tolerance degree : +- 4.0

control lever
 position degree : 13.0
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 6.00
 Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 8.00

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
 rack travel mm : 12.55
 Tolerance mm : +- 0.05

Rated speed rpm : 500
rack travel mm : 12.55
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 600
rack travel mm : 12.55
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.80
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 210
rack travel mm : 10.50
Tolerance mm : ± 0.10

Pressure hPa : 280
rack travel mm : 11.75
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check speed 1/min : > 80
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 600
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 211.0
Tolerance cm³/1000 strokes : ± 2.0
Check tolerance cm³/1000S. : ± 5.0

Aneroid pressure hPa : -

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 131.5
Tolerance cm³/1000 strokes : ± 1.0
Check tolerance cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 11.50
Rated speed rpm : 1045
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 200.0
Tolerance cm³/1000 strokes : ± 10.0
Check tolerance cm³/1000S. : ± 14.0

LOW IDLE

Del. quantity cm³/1000 strokes : 18.0
Tolerance cm³/1000 strokes : ± 3.0
Check tolerance cm³/1000S. : ± 6.0
Speed Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 492
Injection pump
Pump designation : PES6P110A120RS7214
EP type number : 0 412 716 805
Governor
Governor design. : RQV350...1100PA964
: -31K
Governor no. : 9 420 080 374
Cust. part No. : 3355823

Customer-spec. information
Customer : CUMMINS
Motor : 6CTAA-290
Power KW : 220.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : +- 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0
Prestroke mm : 4.40
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10
Rack travel in mm : 10.50
Tolerance mm : +- 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 900
Rack travel in mm : 13.95
Tolerance mm : +- 0.05
Del. quantity
cm3/1000 strokes : 186.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

Del. quantity
 cm³/1000 strokes : 43.0
 Tolerance
 cm³/1000 strokes : ± 2.0
 Check tolerance
 cm³/1000S. : ± 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
 guide sleeve
 travel mm : 1.90
 Tolerance mm : ± 0.10

Rated speed rpm : 1200
 guide sleeve
 travel mm : 9.10
 Tolerance mm : ± 0.10

Rated speed rpm : 450
 guide sleeve
 travel mm : 3.20
 Tolerance mm : ± 0.20

Rated speed rpm : 700
 guide sleeve
 travel mm : 6.10
 Tolerance mm : ± 0.20

Rated speed rpm : 1400
 guide sleeve
 travel mm : 10.90
 Tolerance mm : ± 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 186.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0

Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 116.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.65
 Rated speed rpm : 1150
 Tolerance 1/min : ± 5

rack travel mm : 4.00
 Rated speed rpm : 1345
 Tolerance 1/min : ± 15

rack travel mm : 0.50
 Tolerance mm : ± 0.50
 Rated speed rpm : 1500

LOW IDLE

control lever
 position degree : 65.0
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 6.60
 Tolerance mm : ± 0.20

Rated speed rpm : 275
 CRT mm min. : > 6.50

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 900
 rack travel mm : 13.95
 Tolerance mm : ± 0.05

Rated speed rpm : 1100
 rack travel mm : 14.65
 Tolerance mm : ± 0.05

Rated speed rpm : 700
 rack travel mm : 12.90
 Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1500
rack travel mm : 14.65
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1100
rack travel mm : 8.50
Tolerance mm : ± 0.10

Rated speed rpm : 1100

Pressure hPa : 1200
rack travel mm : 14.30
Tolerance mm : ± 0.10

Pressure hPa : 600
rack travel mm : 10.45
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 240

Check speed 1/min : > 80
Check speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 180.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 104.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 13.65
Rated speed rpm : 1150
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.20
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 25.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 43.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 496
Injection pump
Pump designation : PES6P120A320/3RS3264
EP type number : 9 400 087 075

Governor
Governor design. : RQV350...1100PA1206
Governor no. : 9 420 080 378

Cust. part No. : 3355762

Customer-spec. information
Customer : CUMMINS
Motor : 6CTA
Power KW : 190.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde assembly : 1 688 901 019

Opening pressure bar : 208.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 3.50
Tolerance mm : +- 0.05
Check tolerance mm : +- 0.10

Rack travel in mm : 10.50
Tolerance mm : +- 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.85
Tolerance mm : +- 0.05

Del. quantity cm3/1000 strokes : 186.0

Tolerance cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000S. : +- 4.0

Speed Tolerance cm3/1000 strokes : 5.0

Check tolerance cm3/1000S. : 9.0

Del. quantity
 cm³/1000 strokes : 15.0
 Tolerance
 cm³/1000 strokes : ± 3.0
 Check tolerance
 cm³/1000S. : ± 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1075
 guide sleeve
 travel mm : 7.60
 Tolerance mm : ± 0.10

Rated speed rpm : 700
 guide sleeve
 travel mm : 5.05
 Tolerance mm : ± 0.25

Rated speed rpm : 350
 guide sleeve
 travel mm : 1.65
 Tolerance mm : ± 0.25

Rated speed rpm : 500
 guide sleeve
 travel mm : 3.45
 Tolerance mm : ± 0.25

Rated speed rpm : 1200
 guide sleeve
 travel mm : 9.30
 Tolerance mm : ± 0.20

GUIDE SLEEVE POSITION

Rated speed rpm : 1150
 Rack travel in mm : 16.50
 Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000

Del. quantity
 cm³/1000 strokes : 186.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 60.0
 tolerance degree : ± 4.0

control lever
 position degree : 115.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 9.80
 Rated speed rpm : 1145
 Tolerance 1/min : ± 5

rack travel mm : 4.00
 Rated speed rpm : 1200
 Tolerance 1/min : ± 15

rack travel mm : 0.50
 Tolerance mm : ± 0.50
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 70.0
 tolerance degree : ± 4.0

control lever
 position degree : 15.0
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350
 rack travel mm : 6.00
 Tolerance mm : ± 0.10

Rated speed rpm : 100
 CRT mm min. : > 10.00

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 10.85
Tolerance mm : ± 0.05

Rated speed rpm : 700
rack travel mm : 10.85
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 10.85
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 600
rack travel mm : 1.55
Tolerance mm : ± 0.15

Pressure hPa : 350
rack travel mm : 0.50
Tolerance mm : ± 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 270

Check speed 1/min : > 80
Check speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 184.0

Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 111.5
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 9.80
Rated speed rpm : 1145
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : ± 1.00
Del. quantity
cm³/1000 strokes : 280.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 497
Injection pump
Pump designation : PES6P120A120RS3344
EP type number : 9 400 087 090
Governor
Governor design. : RQV350...1100PA1207
Governor no. : 9 420 080 379
Cust. part No. : 3355976

Customer-spec. information
Customer : CUMMINS
Motor : 6 CTA - 290
Power KW : 214.6

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 076
Inlet press. bar : 3.0
Test nozzle holde
assembly : 1 688 901 019
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 15.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 15.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 207.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speeed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Del. quantity
 cm³/1000 strokes : 44.0
 Tolerance
 cm³/1000 strokes : ± 3.0
 Check tolerance
 cm³/1000S. : ± 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1150
 guide sleeve
 travel mm : 8.40
 Tolerance mm : ± 0.10

Rated speed rpm : 650
 guide sleeve
 travel mm : 5.55
 Tolerance mm : ± 0.25

Rated speed rpm : 350
 guide sleeve
 travel mm : 1.55
 Tolerance mm : ± 0.25

Rated speed rpm : 500
 guide sleeve
 travel mm : 4.05
 Tolerance mm : ± 0.25

Rated speed rpm : 1400
 guide sleeve
 travel mm : 10.55
 Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1150
 Rack travel in mm : 16.50
 Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1300

Del. quantity
 cm³/1000 strokes : 207.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 63.0
 tolerance degree : ± 4.0

control lever
 position degree : 118.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 14.50
 Rated speed rpm : 1150
 Tolerance 1/min : ± 5

rack travel mm : 4.00
 Rated speed rpm : 1360
 Tolerance 1/min : ± 15

rack travel mm : 0.50
 Tolerance mm : ± 0.50
 Rated speed rpm : 1500

LOW IDLE

control lever
 position degree : 69.0
 tolerance degree : ± 4.0

control lever
 position degree : 14.0
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 325
 rack travel mm : 7.00
 Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 9.50

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 15.55
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 15.95
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1300
rack travel mm : 15.95
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 800
rack travel mm : 2.75
Tolerance mm : \pm 0.15

Pressure hPa : 400
rack travel mm : 1.10
Tolerance mm : \pm 0.10

START CUT-OUT

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 270

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1300
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 217.0

C24

Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 14.50
Rated speed rpm : 1150
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 190.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 44.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 12.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 498
Injection pump
Pump designation : PES6P120A120RS3344
EP type number : 9 400 087 090
Governor
Governor design. : RQV350...1100PA1216
Governor no. : 9 420 080 380
Cust. part No. : 3355978

Customer-spec. information
Customer : CUMMINS
Motor : 6 CTAA - 250
Power KW : 184.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 2 417 413 076
Inlet press. bar : 3.0
Test nozzle holde
assembly : 1 688 901 019
Opening pressure
bar : 208.5
Tolerance bar : +- 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0
Prestroke mm : 4.15
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10
Rack travel in mm : 15.50
Tolerance mm : +- 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 1100
Rack travel in mm : 14.55
Tolerance mm : +- 0.05
Del. quantity
cm3/1000 strokes : 184.5
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 4.0
Speed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

Del. quantity
 cm³/1000 strokes : 44.0
 Tolerance
 cm³/1000 strokes : +- 3.0
 Check tolerance
 cm³/1000S. : +- 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1150
 guide sleeve
 travel mm : 8.40
 Tolerance mm : +- 0.10

Rated speed rpm : 650
 guide sleeve
 travel mm : 5.55
 Tolerance mm : +- 0.25

Rated speed rpm : 350
 guide sleeve
 travel mm : 1.55
 Tolerance mm : +- 0.25

Rated speed rpm : 500
 guide sleeve
 travel mm : 4.05
 Tolerance mm : +- 0.25

Rated speed rpm : 1400
 guide sleeve
 travel mm : 10.55
 Tolerance mm : +- 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1150
 Rack travel in mm : 16.50
 Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000

Del. quantity
 cm³/1000 strokes : 184.5
 Tolerance
 cm³/1000 strokes : +- 1.0
 Check tolerance
 cm³/1000S. : +- 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 63.0
 tolerance degree : +- 4.0

control lever
 position degree : 117.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 13.50
 Rated speed rpm : 1155
 Tolerance 1/min : +- 5

rack travel mm : 4.00
 Rated speed rpm : 1350
 Tolerance 1/min : +- 15

rack travel mm : 0.50
 Tolerance mm : +- 0.50
 Rated speed rpm : 1500

LOW IDLE

control lever
 position degree : 69.0
 tolerance degree : +- 4.0

control lever
 position degree : 14.0
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 325
 rack travel mm : 7.00
 Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 9.50

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 14.55
Tolerance mm : ± 0.05

Rated speed rpm : 700
rack travel mm : 14.55
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 14.55
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 680
rack travel mm : 0.85
Tolerance mm : ± 0.15

Pressure hPa : 530
rack travel mm : 0.30
Tolerance mm : ± 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 255

Check speed 1/min : > 80
Check speed 1/min : < 275

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 184.0

C27

Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 144.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 13.50
Rated speed rpm : 1155
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : ± 1.00
Del. quantity
cm³/1000 strokes : 190.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 44.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.04.96
Test oil : ISO 4113

Combination No. : 9 400 087 499

Injection pump
Pump designation : PE6P110A720RS3289-1
EP type number : 0 411 816 795

Governor
Governor design. : RSV350...900P1A600
Governor no. : 9 420 082 331

Cust. part No. : 1371920

Customer-spec. information
Customer : SCANIA
Motor : DS1193A
Power KW : 211.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration damper
(RoBo diaphragm) : 3.1

Test oil inlet temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder assembly : 1 688 901 104

Opening pressure bar : 251.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.35
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check tolerance *NW : + 0.75

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 12.35
Tolerance mm : + 0.05

Del. quantity cm³/1000 strokes : 168.0

Tolerance cm³/1000 strokes : + 1.0

Check tolerance cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Del. quantity
cm³/1000 strokes : 15.5
Tolerance
cm³/1000 strokes : +- 2.5
Check tolerance
cm³/1000S. : +- 5.0

Spread
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

governor spring
pre-tension
click setting x : 2.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 168.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0
Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 41.0
tolerance degree : +- 4.0

control lever
position degree : 91.0
tolerance degree : +- 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 900
rack travel mm : 11.30

Rated speed rpm : 929
Tolerance 1/min : +- 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1000

Rated speed rpm : 901
rack travel mm : 11.30

Rated speed rpm : 930
Tolerance 1/min : +- 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1000

Rated speed rpm : 902
rack travel mm : 11.30

Rated speed rpm : 931
Tolerance 1/min : +- 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1000

Rated speed rpm : 903
rack travel mm : 11.30

Rated speed rpm : 932
Tolerance 1/min : +- 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1000

Rated speed rpm : 904
rack travel mm : 11.30

Rated speed rpm : 933

Tolerance 1/min : +- 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1000

Rated speed rpm : 905
rack travel mm : 11.30

Rated speed rpm : 934
Tolerance 1/min : +- 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1000

LOW IDLE

control lever
position degree : 68.0
tolerance degree : +- 4.0

control lever
position degree : 18.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 5.50

Testing:

Rated speed rpm : 350
rack travel mm : 6.00
Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 395
Tolerance 1/min : +- 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 850
rack travel mm : 12.35
Tolerance mm : +- 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 12.35
Tolerance mm : +- 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.95
Tolerance mm : +- 0.15

Rated speed rpm : 500

Pressure hPa : 200
rack travel mm : 11.60
Tolerance mm : +- 0.10

Pressure hPa : 140
rack travel mm : 10.75
Tolerance mm : +- 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 113.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : +- 1.00
Del. quantity
cm³/1000 strokes : 269.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 14.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 15.5
Tolerance
cm³/1000 strokes : +- 2.5
Check tolerance
cm³/1000S. : +- 5.0
Spreed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 501
Injection pump
Pump designation : PES5P120A720LS7280
EP type number : 9 400 087 087
Governor
Governor design. : RQV300...950PA1249
Governor no. : 9 420 080 389
Cust. part No. : 4750747302

Customer-spec. information
Customer : MBB
Motor : OM 449 LA-EURO I
Power KW : 220.7

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 2.0
Test nozzle holde
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 075
Outside diameter : 8.0

004

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 21.00
Firing order : 1- 3- 5- 4- 2
Phasing : 0-72-144-216-288

BASIC SETTING

Rated speed rpm : 700
Rack travel in mm : 13.75
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 263.5
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 9.0
Del. quantity
cm³/1000 strokes : 17.0

Tolerance
 cm³/1000 strokes : +- 3.0
 Check tolerance
 cm³/1000S. : +- 6.0
 Spread
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1050
 guide sleeve
 travel mm : 7.80
 Tolerance mm : +- 0.10

Rated speed rpm : 700
 guide sleeve
 travel mm : 5.45
 Tolerance mm : +- 0.25

Rated speed rpm : 300
 guide sleeve
 travel mm : 0.75
 Tolerance mm : +- 0.25

Rated speed rpm : 500
 guide sleeve
 travel mm : 3.55
 Tolerance mm : +- 0.25

Rated speed rpm : 1165
 guide sleeve
 travel mm : 9.45
 Tolerance mm : +- 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1120

Rack travel in mm : 16.50
 Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1300
 Del. quantity
 cm³/1000 strokes : 263.5
 Tolerance
 cm³/1000 strokes : +- 1.0

Check tolerance
 cm³/1000S. : +- 4.0
 Spread
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 52.0
 tolerance degree : +- 4.0

control lever
 position degree : 117.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 12.70
 Rated speed rpm : 995
 Tolerance 1/min : +- 5

rack travel mm : 4.00
 Rated speed rpm : 1125
 Tolerance 1/min : +- 15

rack travel mm : 0.50
 Tolerance mm : +- 0.50
 Rated speed rpm : 1250

LOW IDLE

control lever
 position degree : 83.0
 tolerance degree : +- 4.0

control lever
 position degree : 18.0
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 5.30
 Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 9.00

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.75
Tolerance mm : ± 0.05

Rated speed rpm : 950
rack travel mm : 13.75
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1300
rack travel mm : 13.75
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 800
rack travel mm : 2.85
Tolerance mm : ± 0.15

Pressure hPa : 480
rack travel mm : 0.90
Tolerance mm : ± 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1300
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 256.0
Tolerance
cm³/1000 strokes : ± 2.0

D06

Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 121.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

BREAKAWAY

Rack travel in mm : 12.70
Rated speed rpm : 995
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 250.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 502
Injection pump
Pump designation : PES6P120A720LS7257
: -10
EP type number : 9 400 087 086
Governor
Governor design. : RQV300...950PA1262
Governor no. : 9 420 080 394
Cust. part No. : 0260749902

Customer-spec. information

Customer : MBB
Motor : OM 447 LA
Power KW : 301.6

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 2.0
Test nozzle holde
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : +- 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

D08

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 4.65
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 21.00

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 14.65
Tolerance mm : +- 0.05

Del. quantity
cm³/1000 strokes : 301.5

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Del. quantity
 cm³/1000 strokes : 17.0
 Tolerance
 cm³/1000 strokes : ± 3.0
 Check tolerance
 cm³/1000S. : ± 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1050
 guide sleeve
 travel mm : 7.80
 Tolerance mm : ± 0.10

Rated speed rpm : 700
 guide sleeve
 travel mm : 5.45
 Tolerance mm : ± 0.25

Rated speed rpm : 300
 guide sleeve
 travel mm : 0.75
 Tolerance mm : ± 0.25

Rated speed rpm : 500
 guide sleeve
 travel mm : 3.25
 Tolerance mm : ± 0.25

Rated speed rpm : 1165
 guide sleeve
 travel mm : 9.45
 Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1120

Rack travel in mm : 16.50
 Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1400
 Del. quantity
 cm³/1000 strokes : 301.5

Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 52.0
 tolerance degree : ± 4.0

control lever
 position degree : 118.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.60
 Rated speed rpm : 990
 Tolerance 1/min : ± 5

rack travel mm : 4.00
 Rated speed rpm : 1130
 Tolerance 1/min : ± 15

rack travel mm : 0.50
 Tolerance mm : ± 0.50
 Rated speed rpm : 1250

LOW IDLE

control lever
 position degree : 82.0
 tolerance degree : ± 4.0

control lever
 position degree : 17.0
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 5.50
 Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 8.50

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 14.65
Tolerance mm : ± 0.05

Rated speed rpm : 950
rack travel mm : 14.65
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 14.65
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1400
rack travel mm : 14.65
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 1000
rack travel mm : 2.75
Tolerance mm : ± 0.15

Pressure hPa : 660
rack travel mm : 1.00
Tolerance mm : ± 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check speed 1/min : > 80

Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1400
Rated speed rpm : 950

Del. quantity
cm³/1000 strokes : 284.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 5.0

Spread
Tolerance

cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1400

Rated speed rpm : 750

Del. quantity
cm³/1000 strokes : 293.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 5.0

Spread
Tolerance

cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -

Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 146.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread
Tolerance

cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

BREAKAWAY

Rack travel in mm : 13.60
Rated speed rpm : 990

Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 265.0

Tolerance
cm³/1000 strokes : ± 10.0

Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 503
Injection pump
Pump designation : PES5P120A720LS7280
EP type number : 9 400 087 087
Governor
Governor design. : RQV300...950PA1263
Governor no. : 9 420 080 392
Cust. part No. : 0270740102

Customer-spec. information
Customer : MBB
Motor : OM 449 LA-EURO I
Power KW : 206.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Test nozzle holder assembly : 1 688 901 105
Opening pressure bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.65
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10
Rack travel in mm : 21.00
Firing order : 1- 3- 5- 4- 2
Phasing : 0-72-144-216-288

BASIC SETTING

Rated speed rpm : 600
Rack travel in mm : 13.45
Tolerance mm : ± 0.05
Del. quantity cm3/1000 strokes : 246.0
Tolerance cm3/1000 strokes : ± 1.0
Check tolerance cm3/1000S. : ± 4.0
Speed Tolerance cm3/1000 strokes : 5.0
Check tolerance cm3/1000S. : 9.0
Del. quantity cm3/1000 strokes : 11.5

Tolerance
 cm³/1000 strokes : +- 3.0
 Check tolerance
 cm³/1000S. : +- 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1050
 guide sleeve
 travel mm : 7.80
 Tolerance mm : +- 0.10

Rated speed rpm : 700
 guide sleeve
 travel mm : 5.45
 Tolerance mm : +- 0.25

Rated speed rpm : 300
 guide sleeve
 travel mm : 0.75
 Tolerance mm : +- 0.25

Rated speed rpm : 500
 guide sleeve
 travel mm : 3.55
 Tolerance mm : +- 0.25

Rated speed rpm : 1165
 guide sleeve
 travel mm : 9.45
 Tolerance mm : +- 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1120

Rack travel in mm : 16.50
 Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 246.0
 Tolerance
 cm³/1000 strokes : +- 1.0

Check tolerance
 cm³/1000S. : +- 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 52.0
 tolerance degree : +- 4.0

control lever
 position degree : 117.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 12.10
 Rated speed rpm : 1005
 Tolerance 1/min : +- 5

rack travel mm : 4.00
 Rated speed rpm : 1125
 Tolerance 1/min : +- 15

rack travel mm : 0.50
 Tolerance mm : +- 0.50
 Rated speed rpm : 1220

LOW IDLE

control lever
 position degree : 83.0
 tolerance degree : +- 4.0

control lever
 position degree : 18.0
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 5.30
 Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 8.00

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 13.45
Tolerance mm : ± 0.05

Rated speed rpm : 950
rack travel mm : 13.15
Tolerance mm : ± 0.05

Rated speed rpm : 900
rack travel mm : 13.15
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 13.45
Tolerance mm : ± 0.05

Rated speed rpm : 800
rack travel mm : 13.45
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 13.45
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 700
rack travel mm : 1.75
Tolerance mm : ± 0.15

Pressure hPa : 500
rack travel mm : 0.60
Tolerance mm : ± 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80

Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 232.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0

Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 243.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0

Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 149.5
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

BREAKAWAY

Rack travel in mm : 12.10
Rated speed rpm : 1005
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 265.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.04.96
Test oil : ISO 4113

Combination No. : 9 400 087 505

Injection pump
Pump designation : PE6P110A720RS3289-1
EP type number : 0 411 816 795

Governor
Governor design. : RSV350...1100P1A626
Governor no. : 9 420 082 332

Cust. part No. : 1377813

Customer-spec. information
Customer : SCANIA
Motor : DS1192A
Power KW : 186.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration damper
(RoBo diaphragm) : 3.1

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde assembly : 1 688 901 104

Opening pressure bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.35
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Beginning of delivery differende

and maximum rack travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 2.00

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 11.25
Tolerance mm : ± 0.05

Del. quantity cm³/1000 strokes : 145.0

Tolerance
 cm³/1000 strokes : +- 1.0

Check tolerance
 cm³/1000S. : +- 4.0

Spreed
 Tolerance
 cm³/1000 strokes : 4.0

Check tolerance
 cm³/1000S. : 7.5

Del. quantity
 cm³/1000 strokes : 8.5

Tolerance
 cm³/1000 strokes : +- 2.5

Check tolerance
 cm³/1000S. : +- 5.0

Spreed
 Tolerance
 cm³/1000 strokes : 4.5

Check tolerance
 cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : +- 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure
 hPa : 700

Del. quantity
 cm³/1000 strokes : 145.0

Tolerance
 cm³/1000 strokes : +- 1.0

Check tolerance
 cm³/1000S. : +- 4.0

Spreed
 Tolerance
 cm³/1000 strokes : 4.0

Check tolerance
 cm³/1000S. : 7.5

CONTROL LEVER

control lever
 position degree : 49.0

tolerance degree : +- 4.0

control lever
 position degree : 99.0

tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 10.20

Rated speed rpm : 950

Tolerance 1/min : +- 5

rack travel mm : 4.00

Rated speed rpm : 995

Tolerance 1/min : +- 15

rack travel mm : 0.85

Tolerance mm : +- 0.55

Rated speed rpm : 1070

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750

rack travel mm : 11.30

Rated speed rpm : 788

Tolerance 1/min : +- 4

rack travel mm : 4.00

rack travel mm : 0.50

Tolerance mm : +- 0.50

Rated speed rpm : 850

Rated speed rpm : 751

rack travel mm : 11.30

Rated speed rpm : 789

Tolerance 1/min : +- 4

rack travel mm : 4.00

rack travel mm : 0.50

Tolerance mm : +- 0.50

Rated speed rpm : 850

Rated speed rpm : 752

rack travel mm : 11.30

Rated speed rpm : 790

Tolerance 1/min : +- 4

rack travel mm : 4.00

rack travel mm : 0.50

Tolerance mm : +- 0.50

Rated speed rpm : 850

Rated speed rpm : 753

rack travel mm : 11.30

Rated speed rpm : 791
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 850

Rated speed rpm : 754
rack travel mm : 11.30

Rated speed rpm : 792
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 850

Rated speed rpm : 755
rack travel mm : 11.30

Rated speed rpm : 793
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 850

LOW IDLE

control lever
position degree : 74.0
tolerance degree : + 4.0

control lever
position degree : 24.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 4.50

Testing:

Rated speed rpm : 350
rack travel mm : 5.00
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 430
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 11.25
Tolerance mm : + 0.05

Rated speed rpm : 600
rack travel mm : 11.30
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 11.25
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 200
rack travel mm : 1.10
Tolerance mm : + 0.10

Pressure hPa : 150
rack travel mm : 0.35
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 148.5
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000s. : + 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 116.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0

BREAKAWAY

Rack travel in mm : 10.20
Rated speed rpm : 950
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : +- 1.00
Del. quantity
cm³/1000 strokes : 255.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 14.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 8.5
Tolerance
cm³/1000 strokes : +- 2.5
Check tolerance
cm³/1000S. : +- 5.0
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 506
Injection pump
Pump designation : PES6P120A320/3RS3365
EP type number : 9 400 087 092
Governor
Governor design. : RSV450...900P1A628
Governor no. : 9 420 082 333

Cust. part No. :

Customer-spec. information
Customer : CUMMINS
Motor : 6CTAAG
Power KW : 240.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder assembly : 1 688 901 105

Opening pressure bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

D20

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.40
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 11.85
Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes : 262.0

Tolerance cm3/1000 strokes : ± 1.0

Check tolerance cm3/1000S. : ± 4.0

Speed Tolerance cm3/1000 strokes : 5.0

Check tolerance cm3/1000S. : 9.0

Del. quantity
 cm³/1000 strokes : 18.0
 Tolerance
 cm³/1000 strokes : ± 3.0
 Check tolerance
 cm³/1000S. : ± 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : ± 0.20
 governor spring
 pre-tension
 click setting x : 5.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 262.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 59.0
 tolerance degree : ± 4.0
 control lever
 position degree : 109.0
 tolerance degree : ± 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 942
 rack travel mm : 10.80
 Rated speed rpm : 982
 Tolerance 1/min : ± 4
 rack travel mm : 4.00
 rack travel mm : 0.50
 Tolerance mm : ± 0.50
 Rated speed rpm : 1030
 Rated speed rpm : 943
 rack travel mm : 10.80
 Rated speed rpm : 983
 Tolerance 1/min : ± 4
 rack travel mm : 4.00
 rack travel mm : 0.50
 Tolerance mm : ± 0.50
 Rated speed rpm : 1030
 Rated speed rpm : 944
 rack travel mm : 10.80
 Rated speed rpm : 984
 Tolerance 1/min : ± 4
 rack travel mm : 4.00
 rack travel mm : 0.50
 Tolerance mm : ± 0.50
 Rated speed rpm : 1030
 Rated speed rpm : 945
 rack travel mm : 10.80
 Rated speed rpm : 985
 Tolerance 1/min : ± 4
 rack travel mm : 4.00
 rack travel mm : 0.50
 Tolerance mm : ± 0.50
 Rated speed rpm : 1030
 Rated speed rpm : 946
 rack travel mm : 10.80
 Rated speed rpm : 986
 Tolerance 1/min : ± 4
 rack travel mm : 4.00
 rack travel mm : 0.50
 Tolerance mm : ± 0.50
 Rated speed rpm : 1030
 Rated speed rpm : 947
 rack travel mm : 10.80

Rated speed rpm : 987
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1030

LOW IDLE

control lever
position degree : 81.0
tolerance degree : + 4.0

control lever
position degree : 31.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 450
rack travel mm : 4.00

Testing:

Rated speed rpm : 450
rack travel mm : 4.50
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 485
Tolerance 1/min : + 30

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 11.85
Tolerance mm : + 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : + 1.00

Del. quantity
cm³/1000 strokes : 302.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.12.95
Test oil : ISO 4113

Combination No. : 9 400 030 723

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...1100AOC838R
Governor no. : 9 420 034 708

Cust. part No. :

Customer-spec. information
Customer : CUMMINS
Motor : 6BT - 148 HP

TEST BENCH REQUIREMENTS

Inlet line : 1.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.10
Tolerance mm : ± 0.05

Rated speed rpm : 475
Rack travel in mm : 5.80

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

governor spring
pre-tension
click setting x : 5.00

CONTROL LEVER

control lever
position degree : 104.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.00
Rated speed rpm : 1135
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1230
Tolerance 1/min : +- 15

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1290

rack travel mm : 4.00
Rated speed rpm : 1240

LOW IDLE

control lever
position degree : 82.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.30

Testing:

Rated speed rpm : 475
rack travel mm : 5.80
Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 565
Tolerance 1/min : +- 30

Rated speed rpm : 100

CRT mm min. : > 19.50

D24

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.10
Tolerance mm : +- 0.05

Rated speed rpm : 800
rack travel mm : 12.80
Tolerance mm : +- 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Pressure hPa : 800

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.70
Tolerance mm : +- 0.10

Pressure hPa : 700
rack travel mm : 12.50
Tolerance mm : +- 0.20

Pressure hPa : 560
rack travel mm : 12.00
Tolerance mm : +- 0.20

BREAKAWAY

Rack travel in mm : 11.00
Rated speed rpm : 1135
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : +- 0.75

LOW IDLE

Rated speed rpm : 475
rack travel mm : 5.80

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.04.96
Test oil : ISO 4113
Combination No. : 9 400 030 751
Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215
Governor
Governor design. : RSV475...1050A0C866R
Governor no. : F 002 A20 202

Cust. part No. : 393 0158

Customer-spec. information
Customer : CUMMINS
Motor : 6BT
Power KW : 94.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 2.0
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.50
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 86.1

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 3.0

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Del. quantity
cm³/1000 strokes : 18.6

Tolerance
cm³/1000 strokes : +- 2.0

Check tolerance
cm³/1000S. : +- 4.5

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 800
Del. quantity
cm³/1000 strokes : 86.1
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 3.0
Spread
Tolerance
cm³/1000 strokes : 4.0

D27

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 105.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.00
Rated speed rpm : 1095
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1190
Tolerance 1/min : +- 15

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1280

rack travel mm : 4.00
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 87.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 6.10

Testing:

Rated speed rpm : 475
rack travel mm : 6.60
Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 610
Tolerance 1/min : +- 30

Rated speed rpm : 100

CRT mm min. : > 19.50

TORQUE CONTROL

Rated speed rpm : 1050

rack travel mm : 12.00
Tolerance mm : +- 0.05

Rated speed rpm : 800
rack travel mm : 12.60
Tolerance mm : +- 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 650
Pressure hPa : 800

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 650
rack travel mm : 11.75
Tolerance mm : +- 0.10

Rated speed rpm : 650

Pressure hPa : 550
rack travel mm : 12.50
Tolerance mm : +- 0.20

Pressure hPa : 475
rack travel mm : 12.15
Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 97.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 82.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 3.0

BREAKAWAY

Rack travel in mm : 11.00
Rated speed rpm : 1095
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : +- 0.50
Del. quantity
cm³/1000 strokes : 121.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 15.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 18.6
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.04.96
Test oil : ISO 4113
Combination No. : 0 402 736 874
Injection pump
Pump designation : PES6P120A120RS7353
EP type number : 0 412 726 924
Governor
Governor design. : RQV350...1100PA1179K
Governor no. : 0 421 815 445

Cust. part No. : 3928151

Customer-spec. information
Customer : CDC
Motor : 6CTA-A
Power KW : 157.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 086
Inlet press. bar : 2.0
Test nozzle holde
assembly : 1 688 901 103
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Prestroke mm : 4.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery blocking
°NW after s.o.d. : 5.25
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 186.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 5.0

Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
guide sleeve
travel mm : 2.11
Tolerance mm : +- 0.20

Rated speed rpm : 1159
guide sleeve
travel mm : 7.79
Tolerance mm : +- 0.15

Rated speed rpm : 726
guide sleeve
travel mm : 4.80
Tolerance mm : +- 0.25

Rated speed rpm : 420
guide sleeve
travel mm : 3.10
Tolerance mm : +- 0.25

Rated speed rpm : 1640
guide sleeve
travel mm : 13.50
Tolerance mm : +- 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 186.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 115.0
tolerance degree : +- 6.0

RATED SPEED

rack travel mm : 11.70
Rated speed rpm : 1260
Tolerance 1/min : +- 15

rack travel mm : 4.00
Rated speed rpm : 1385
Tolerance 1/min : +- 5

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 67.0
tolerance degree : +- 6.0

Testing:

Rated speed rpm : 350
rack travel mm : 6.00
Tolerance mm : +- 0.20

Rated speed rpm : 275

CRT mm min. : > 7.90

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.85
Tolerance mm : \pm 0.05

Rated speed rpm : 650
rack travel mm : 11.80
Tolerance mm : \pm 0.20

Rated speed rpm : 1200
rack travel mm : 12.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1200

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1100
rack travel mm : 8.90
Tolerance mm : \pm 0.20

Rated speed rpm : 1100
Pressure hPa : 520
rack travel mm : 11.50
Tolerance mm : \pm 0.20

Pressure hPa : 255
rack travel mm : 9.70
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 290

Check speed 1/min : > 80
Check speed 1/min : < 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1200

E03

Rated speed rpm : 650
Del. quantity cm³/1000 strokes : 166.5

Tolerance cm³/1000 strokes : \pm 3.0
Check tolerance cm³/1000S. : \pm 6.0

Speed Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 1100
Del. quantity cm³/1000 strokes : 90.5
Tolerance cm³/1000 strokes : \pm 1.0
Check tolerance cm³/1000S. : \pm 3.0

BREAKAWAY

Rack travel in mm : 11.70
Rated speed rpm : 1260
Tolerance 1/min : \pm 15

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.00
Tolerance mm : \pm 0.50
Del. quantity cm³/1000 strokes : 180.0
Tolerance cm³/1000 strokes : \pm 20.0
Check tolerance cm³/1000S. : \pm 25.0

LOW IDLE

Del. quantity cm³/1000 strokes : 23.0
Tolerance cm³/1000 strokes : \pm 3.0
Check tolerance cm³/1000S. : \pm 5.0
Speed Tolerance cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.04.96
Test oil : ISO 4113
Combination No. : 9 400 030 735
Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215
Governor
Governor design. : RSV500...1100A0C848R
Governor no. : 9 420 034 714

Cust. part No. : 3929411

Customer-spec. information
Customer : CDC
Motor : 6BT
Power KW : 82.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 2.0
Test nozzle holder assembly : 1 688 901 101
Opening pressure bar : 208.5
Tolerance bar : +- 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

E05

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : +- 1.0
Prestroke mm : 2.85
Tolerance mm : +- 0.05
Check tolerance mm : +- 0.10
Rack travel in mm : 10.50
Tolerance mm : +- 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : +- 0.50
Check tolerance °NW : +- 0.75
Start of delivery blocking
°NW after s.o.d. : 7.50
Tolerance : +- 0.50
Check tolerance °NW : +- 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100
Rack travel in mm : 9.65
Tolerance mm : +- 0.05
Del. quantity cm³/1000 strokes : 76.0

<hr/>	
Tolerance	
cm ³ /1000 strokes	: +- 1.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: +- 3.0
<hr/>	
Spread	
Tolerance	
cm ³ /1000 strokes	: 4.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: 6.5
<hr/>	
Del. quantity	
cm ³ /1000 strokes	: 18.5
Tolerance	
cm ³ /1000 strokes	: +- 2.0
Check tolerance	
cm ³ /1000S.	: +- 4.5
Spread	
Tolerance	
cm ³ /1000 strokes	: 6.0
Check tolerance	
cm ³ /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: +- 0.20
governor spring	
pre-tension	
click setting x	: 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure	
hPa	: -
Del. quantity	
cm ³ /1000 strokes	: 76.0
Tolerance	
cm ³ /1000 strokes	: +- 1.0
Check tolerance	
cm ³ /1000S.	: +- 3.0
Spread	
Tolerance	
cm ³ /1000 strokes	: 4.0
Check tolerance	
cm ³ /1000S.	: 6.5

CONTROL LEVER

control lever	
position degree	: 96.0
tolerance degree	: +- 4.0

RATED SPEED

rack travel mm	: 8.50
Rated speed rpm	: 1165
Tolerance 1/min	: +- 5
<hr/>	
rack travel mm	: 4.50
Rated speed rpm	: 1215
Tolerance 1/min	: +- 5
<hr/>	
rack travel mm	: 0.85
Tolerance mm	: +- 0.55
Rated speed rpm	: 1300
<hr/>	
rack travel mm	: 4.50
Rated speed rpm	: 1215

LOW IDLE

control lever	
position degree	: 82.0
tolerance degree	: +- 4.0

Setting point w/out bumper spring

Rated speed rpm	: 500
rack travel mm	: 4.60

Testing:

Rated speed rpm	: 500
rack travel mm	: 5.10
Tolerance mm	: +- 0.10
<hr/>	
Rated speed rpm	: 100
CRT mm min.	: > 19.00

TORQUE CONTROL

Rated speed rpm	: 1100
rack travel mm	: 9.65
Tolerance mm	: +- 0.05
<hr/>	
Rated speed rpm	: 800
rack travel mm	: 10.40
Tolerance mm	: +- 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.0

BREAKAWAY

Rack travel in mm : 8.50
Rated speed rpm : 1165
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : +- 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 15.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 18.5
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.04.96
Test oil : ISO 4113

Combination No. : 9 400 030 747

Injection pump
Pump designation : PES4A95D320/3RS2880
EP type number : 9 410 037 214

Governor
Governor design. : RSV475...1100A0C863R
Governor no. : 9 420 034 721

Cust. part No. : 3930152

Customer-spec. information
Customer : CDC
Motor : 4BT3.9
Power KW : 71.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

E08

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 7.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 105.0

<hr/>	
Tolerance	
cm3/1000 strokes	: + 1.0
<hr/>	
Check tolerance	
cm3/1000S.	: + 3.0
<hr/>	
Spread	
Tolerance	
cm3/1000 strokes	: 4.0
<hr/>	
Check tolerance	
cm3/1000S.	: 6.5
<hr/>	
Del. quantity	
cm3/1000 strokes	: 20.5
Tolerance	
cm3/1000 strokes	: + 2.0
Check tolerance	
cm3/1000S.	: + 4.5
Spread	
Tolerance	
cm3/1000 strokes	: 6.0
Check tolerance	
cm3/1000S.	: 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
<hr/>	
governor spring	
pre-tension	
click setting x	: 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure	
hPa	: 1000
Del. quantity	
cm3/1000 strokes	: 105.0
Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000S.	: + 3.0
Spread	
Tolerance	
cm3/1000 strokes	: 4.0
Check tolerance	
cm3/1000S.	: 6.5

CONTROL LEVER

control lever	
position degree	: 99.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 11.25
Rated speed rpm	: 1165
Tolerance 1/min	: + 5

rack travel mm	: 6.00
Rated speed rpm	: 1225
Tolerance 1/min	: + 5

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1375

rack travel mm	: 6.00
Rated speed rpm	: 1225

LOW IDLE

control lever	
position degree	: 87.0
tolerance degree	: + 4.0

Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 5.15

Testing:

Rated speed rpm	: 475
rack travel mm	: 5.65
Tolerance mm	: + 0.10

Rated speed rpm	: 100
CRT mm min.	: > 19.00

TORQUE CONTROL

Rated speed rpm	: 1100
rack travel mm	: 12.25
Tolerance mm	: + 0.05

Rated speed rpm	: 750
rack travel mm	: 13.00
Tolerance mm	: + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 750
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 750
rack travel mm : 11.20
Tolerance mm : +- 0.10

Rated speed rpm : 750

Pressure hPa : 600
rack travel mm : 12.70
Tolerance mm : +- 0.20

Pressure hPa : 410
rack travel mm : 11.80
Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 115.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 89.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 3.0

BREAKAWAY

Rack travel in mm : 11.25
Rated speed rpm : 1165
Tolerance 1/min : +- 5

E10

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : +- 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 15.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 20.5
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.04.96
Test oil : ISO 4113

Combination No. : 9 400 030 749

Injection pump
Pump designation : PES4A95D320/3RS288D
EP type number : 9 410 037 214

Governor
Governor design. : RSV475...1050A0C864R
Governor no. :

Cust. part No. : 3930155

Customer-spec. information
Customer : CDC
Motor : 4BT3.9
Power KW : 68.5

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

E11

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 6.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 102.5

<hr/>	
Tolerance	
cm ³ /1000 strokes	: + 1.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: + 3.0
<hr/>	
Spread	
Tolerance	
cm ³ /1000 strokes	: 4.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: 6.5
<hr/>	
Del. quantity	
cm ³ /1000 strokes	: 18.5
Tolerance	
cm ³ /1000 strokes	: + 2.0
Check tolerance	
cm ³ /1000S.	: + 4.5
Spread	
Tolerance	
cm ³ /1000 strokes	: 6.0
Check tolerance	
cm ³ /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
governor spring	
pre-tension	
click setting x	: 2.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure	
hPa	: 1000
Del. quantity	
cm ³ /1000 strokes	: 102.5
Tolerance	
cm ³ /1000 strokes	: + 1.0
Check tolerance	
cm ³ /1000S.	: + 3.0
Spread	
Tolerance	
cm ³ /1000 strokes	: 4.0
Check tolerance	
cm ³ /1000S.	: 6.5

CONTROL LEVER

control lever	
position degree	: 96.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 11.25
Rated speed rpm	: 1105
Tolerance 1/min	: + 5
rack travel mm	: 6.00
Rated speed rpm	: 1165
rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1275
rack travel mm	: 6.00
Rated speed rpm	: 1165

LOW IDLE

control lever	
position degree	: 85.0
tolerance degree	: + 4.0

Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 5.15

Testing:

Rated speed rpm	: 475
rack travel mm	: 5.65
Tolerance mm	: + 0.10
Rated speed rpm	: 100
CRT mm min.	: > 19.00

TORQUE CONTROL

Rated speed rpm	: 1050
rack travel mm	: 12.05
Tolerance mm	: + 0.05
Rated speed rpm	: 750
rack travel mm	: 13.60
Tolerance mm	: + 0.10

Rated speed rpm : 1000
rack travel mm : 12.40
Tolerance mm : ± 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 750
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 750
rack travel mm : 11.60
Tolerance mm : ± 0.10

Rated speed rpm : 750

Pressure hPa : 720
rack travel mm : 13.10
Tolerance mm : ± 0.20

Pressure hPa : 510
rack travel mm : 12.10
Tolerance mm : ± 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 123.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 96.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

BREAKAWAY

Rack travel in mm : 11.25
Rated speed rpm : 1105
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 136.5
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 15.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 18.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.04.96
Test oil : ISO 4113

Combination No. : 0 400 076 953

Injection pump
Pump designation : PES6M55C32ORS203
EP type number : 0 410 056 982

Governor
Governor design. : RSF315/2500M70-11
Governor no. : 0 420 021 270

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM606 USA
Power KW : 95.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

E14

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 1.75
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 21.00
Tolerance mm : +- 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 17.00
Tolerance : +- 0.20
Check
tolerance °NW : +- 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.15
Tolerance mm : +- 0.05

Del. quantity
cm³/1000 strokes : 38.0

Tolerance
cm³/1000 strokes : +- 0.5

Check tolerance
cm³/1000S. : +- 1.5

Spread

Tolerance
 cm³/1000 strokes : 2.5

 Check tolerance
 cm³/1000S. : 3.0
 Rated speed rpm : 290
 Rack travel in mm : 7.30
 Tolerance mm : +- 0.10
 Del. quantity
 cm³/1000 strokes : 8.5
 Tolerance
 cm³/1000 strokes : +- 0.5
 Spreed
 Tolerance
 cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25
 Tolerance mm : +- 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
 Ref. pressure
 ALDA / ADA hPa : 1100
 Del. quantity
 cm³/1000 strokes : 38.0
 Tolerance
 cm³/1000 strokes : +- 0.5
 Check tolerance
 cm³/1000S. : +- 1.5
 Spreed
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

RATED SPEED

control lever
 position degree : 50.0
 rack travel mm : 7.90
 Rated speed rpm : 2700
 rack travel mm : 1.00
 Tolerance mm : +- 1.00
 Rated speed rpm : 3000

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1100
 CRT mm max. : 1.95

LOW IDLE

control lever
 position degree : 10.5
 tolerance degree : +- 2.0

Setting point w/out bumper spring
 Rated speed rpm : 290
 rack travel mm : 7.30

SET IDLE AUXILIARY SPRING

Rated speed rpm : 400
 rack travel mm : 6.00
 Tolerance mm : +- 0.10

rack travel mm : 3.00
 Rated speed rpm : 700
 Tolerance 1/min : +- 50

Load pick-up

Rated speed rpm : 220
 CRT mm min. : > 9.00

Rated speed rpm : 1100
 CRT mm max. : 1.95

rack travel mm : 7.30
 Rated speed rpm : 290

TORQUE CONTROL

Rated speed rpm : 1100
 rack travel mm : 13.15
 Tolerance mm : +- 0.05

Rated speed rpm : 2000
 rack travel mm : 12.30
 Tolerance mm : +- 0.15

Rated speed rpm : 2500
 rack travel mm : 11.80
 Tolerance mm : +- 0.15

Rated speed rpm : 500

rack travel mm : 12.30
Tolerance mm : +- 0.15

Rated speed rpm : 900
rack travel mm : 12.90
Tolerance mm : +- 0.15

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1100
Ref. pressure
ALDA / ADA hPa : 940
rack travel mm : -0.10
Tolerance mm : +- 0.10

MEASUREMENT

Rated speed rpm : 1100
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.40
Tolerance mm : +- 0.10

Rated speed rpm : 1100
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -1.50
Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2000
Del. quantity
cm³/1000 strokes : 38.1
Tolerance
cm³/1000 strokes : +- 0.8
Check tolerance
cm³/1000S. : +- 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2500
Spreed
Del. quantity
cm³/1000 strokes : 37.3
Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 strokes : +- 0.8
Check tolerance
cm³/1000S. : +- 1.8
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 36.2
Tolerance
cm³/1000 strokes : +- 0.8
Check tolerance
cm³/1000S. : +- 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : > 20.10
Del. quantity
cm³/1000 strokes : 52.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Rated speed rpm : 290
rack travel mm : 7.30
Tolerance mm : ± 0.15
Del. quantity
cm³/1000 strokes : 9.5
Check tolerance
cm³/1000s. : ± 2.3
Spreed
Check tolerance
cm³/1000s. : 1.5

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 10.5
tolerance degree : ± 2.0

SETTING/TESTING ELECTRONIC IDLE
REGULATION (ELR)

control lever
position degree : 10.5
tolerance degree : ± 2.0
Rated speed rpm : 315

Rack travel in mm : 13.40
Tolerance mm : ± 0.70
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : ± 3.5

Current A : 1.80

control lever
position degree : 50.0
Rated speed rpm : 3000

Rack travel in mm : 1.00
Tolerance mm : ± 1.00

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100

Current A : 1.80

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 290

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.04.96
Test oil : ISO 4113

Combination No. : 0 402 640 804

Injection pump
Pump designation : PE12P120A320LS7807
EP type number : 0 412 620 806

Governor
Governor design. : RQV350...1050PA842
Governor no. : 0 421 813 587

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM 444 A
Power KW : 390.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. L/h : 160
Tolerance L/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 12- 1- 5- 9- 8
: - 3- 4- 11- 10
: - 2- 6- 7

Phasing : 0-45-60-105-120
: -165-180-225-240
: -285-300-345
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 12

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 13.60
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 200.0

<hr/>	
Tolerance	
cm ³ /1000 strokes	: ± 1.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: ± 4.0
<hr/>	
Spreed	
Tolerance	
cm ³ /1000 strokes	: 5.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: 9.0
<hr/>	
Rated speed rpm	: 350
<hr/>	
Rack travel in mm	: 5.55
Tolerance mm	: ± 0.15
Del. quantity	
cm ³ /1000 strokes	: 19.0
Tolerance	
cm ³ /1000 strokes	: ± 3.0
Check tolerance	
cm ³ /1000S.	: ± 4.5
Spreed	
Tolerance	
cm ³ /1000 strokes	: 8.0
Check tolerance	
cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 350
guide sleeve	
travel mm	: 2.00
Tolerance mm	: ± 0.10
<hr/>	
Rated speed rpm	: 1200
guide sleeve	
travel mm	: 8.50
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 700
guide sleeve	
travel mm	: 4.20
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 1100
guide sleeve	
travel mm	: 7.00
Tolerance mm	: ± 0.20

GUIDE SLEEVE POSITION

Rated speed rpm	: 1150
Rack travel in mm	: 16.50
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 600
Aneroid pressure	
hPa	: 660
Del. quantity	
cm ³ /1000 strokes	: 200.0
Tolerance	
cm ³ /1000 strokes	: ± 1.0
Check tolerance	
cm ³ /1000S.	: ± 4.0
Spreed	
Tolerance	
cm ³ /1000 strokes	: 5.0
Check tolerance	
cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 63.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 11.00
Rated speed rpm	: 1095
Tolerance 1/min	: ± 5
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rack travel mm	: 4.00
Rated speed rpm	: 1170
Tolerance 1/min	: ± 15
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1300

LOW IDLE

control lever	
position degree	: 14.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm	: 350
rack travel mm	: 5.55
Tolerance mm	: ± 0.10

Rated speed rpm : 250
CRT mm min. : > 7.10
Rated speed rpm : 500

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 13.60
Tolerance mm : +- 0.10

Rated speed rpm : 1050
rack travel mm : 12.10
Tolerance mm : +- 0.10

Rated speed rpm : 975
rack travel mm : 12.70
Tolerance mm : +- 0.10

Rated speed rpm : 875
rack travel mm : 13.30
Tolerance mm : +- 0.10

Rated speed rpm : 750
rack travel mm : 13.60
Tolerance mm : +- 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

MEASUREMENT

Pressure hPa : 350
rack travel mm : -2.10
Tolerance mm : +- 0.05

Pressure hPa : 500
rack travel mm : -0.60
Tolerance mm : +- 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 270

Check speed 1/min : > 80
Check speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1100
Rated speed rpm : 1050
Del. quantity cm³/1000 strokes : 172.0
Tolerance cm³/1000 strokes : +- 2.0
Check tolerance cm³/1000S. : +- 5.0
Spreed Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : 1100
Rated speed rpm : 750
Del. quantity cm³/1000 strokes : 206.0
Tolerance cm³/1000 strokes : +- 2.0
Check tolerance cm³/1000S. : +- 5.0
Spreed Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : 1100
Rated speed rpm : 1050
Del. quantity cm³/1000 strokes : 152.0
Tolerance cm³/1000 strokes : +- 2.0
Check tolerance cm³/1000S. : +- 5.0
Spreed Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 137.0
Tolerance cm³/1000 strokes : +- 1.0
Check tolerance cm³/1000S. : +- 4.0
Spreed Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 11.00
Rated speed rpm : 1095
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 14.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 5.55
Tolerance mm : +- 0.15
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 4.5
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.03.96
Test oil : ISO 4113
Combination No. : 0 402 646 627
Injection pump
Pump designation : PE6P120A320RS7297
: -10
EP type number : 0 412 626 921
Governor
Governor design. : RQV350...1100PA795
: -12
Governor no. : 0 421 813 914
Cust. part No. : 1340653

Customer-spec. information
Customer : SCANIA
Motor : DSC 909

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Vibration damper (RoBo diaphragm) : 4.2
Test oil inlet temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 2.5
Tolerance bar : + 0.1
Overflow quantity min. l/h : 210
Tolerance l/h : + 20.0
Test nozzle holde assembly : 1 688 901 104

Opening pressure bar : 251.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 5.25
Tolerance mm : + 0.05
Check tolerance mm : + 0.10
Rack travel in mm : 13.00
Tolerance mm : + 0.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check tolerance °NW : + 0.50

BASIC SETTING

Rated speed rpm : 700
Rack travel in mm : 13.25
Tolerance mm : + 0.05
Del. quantity cm3/1000 strokes : 205.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 4.90
Tolerance mm : +- 0.30

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 6.0

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 1300

Rack travel in mm : 12.00
Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 205.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 47.0
tolerance degree : +- 4.0

control lever
position degree : 106.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 12.20
Rated speed rpm : 1145
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1270
Tolerance 1/min : +- 15

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 68.0
tolerance degree : +- 4.0

control lever
position degree : 11.0
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 4.90
Tolerance mm : +- 0.10

Rated speed rpm : 150

CRT mm min. : > 6.40

Rated speed rpm : 250

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 13.25
Tolerance mm : +- 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.25
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 11.00
Tolerance mm : ± 0.20

Rated speed rpm : 500

Pressure hPa : 470
rack travel mm : 11.95
Tolerance mm : ± 0.15

Pressure hPa : 670
rack travel mm : 12.85
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 183.0
Tolerance
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 12.20

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Rated speed rpm : 1145
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 265.0
Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 24.0

LOW IDLE

Rated speed rpm : 250
rack travel mm : 4.90
Tolerance mm : ± 0.30
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.04.96
Test oil : ISO 4113

Combination No. : 0 402 646 666

Injection pump
Pump designation : PE6P120A320LS7278
EP type number : 0 412 626 880

Governor
Governor design. : RQV350...900PA1273
Governor no. : 0 421 814 174

Cust. part No. :

Customer-spec. information
Customer : LIAZ
Motor : M640D
Power KW : 300.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 125
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 15.50
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 294.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spreed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 325

Rack travel in mm : 5.30
Tolerance mm : +- 0.30

Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0

Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325
guide sleeve
travel mm : 1.50
Tolerance mm : +- 0.20

Rated speed rpm : 958
guide sleeve
travel mm : 8.02
Tolerance mm : +- 0.15

Rated speed rpm : 810
guide sleeve
travel mm : 6.01
Tolerance mm : +- 0.25

Rated speed rpm : 540
guide sleeve
travel mm : 3.71
Tolerance mm : +- 0.25

Rated speed rpm : 1017

guide sleeve
travel mm : 10.00
Tolerance mm : +- 0.25

Rated speed rpm : 1090
guide sleeve
travel mm : 11.50
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 975

Rack travel in mm : 14.50
Tolerance mm : +- 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 294.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0

Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 66.0
tolerance degree : +- 4.0

control lever
position degree : 120.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 14.50
Rated speed rpm : 945
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1005
Tolerance 1/min : +- 15

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1150

LOW IDLE

control lever
position degree : 65.0
tolerance degree : ± 4.0

control lever
position degree : 11.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 325
rack travel mm : 5.30
Tolerance mm : ± 0.10

Rated speed rpm : 225

CRT mm min. : > 7.00

Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 15.50
Tolerance mm : ± 0.05

Rated speed rpm : 700
rack travel mm : 15.50
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 15.50
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.20
Tolerance mm : ± 0.20

Rated speed rpm : 500

Pressure hPa : 250
rack travel mm : 10.60

E27

Tolerance mm : ± 0.25

Pressure hPa : 540
rack travel mm : 13.90
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 316.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 169.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 14.50
Rated speed rpm : 945
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 310.0
Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 24.0

LOW IDLE

Rated speed rpm : 325
rack travel mm : 5.30
Tolerance mm : ± 0.30

Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.04.96
Test oil : ISO 4113

Combination No. : 0 402 646 745

Injection pump
Pump designation : PE6P120A320LS7872
EP type number : 0 412 626 912

Governor
Governor design. : RQV300...1050PA1241K
Governor no. : 0 421 815 476

Cust. part No. : B0165-6-13

Customer-spec. information

Customer : KHD
Motor : BF6M1015C
Power KW : 300.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. L/h : 105
Tolerance L/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

F01

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 6- 3- 5- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.40
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 350.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 300

Rack travel in mm : 4.90
Tolerance mm : + 0.20

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spreed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 2.74
Tolerance mm : + 0.20

Rated speed rpm : 1107
guide sleeve
travel mm : 9.89
Tolerance mm : + 0.15

Rated speed rpm : 772
guide sleeve
travel mm : 6.82
Tolerance mm : + 0.25

Rated speed rpm : 440
guide sleeve
travel mm : 3.88
Tolerance mm : + 0.25

Rated speed rpm : 1380
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

F02

GUIDE SLEEVE POSITION

Rated speed rpm : 1205

Rack travel in mm : 13.40
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure
hPa : 1700

Del. quantity
cm³/1000 strokes : 350.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 121.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.40
Rated speed rpm : 1085
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1220
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 76.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 4.90
Tolerance mm : ± 0.10

Rated speed rpm : 200
CRT mm min. : > 7.10

Rated speed rpm : 355

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 14.40
Tolerance mm : ± 0.05

Rated speed rpm : 600
rack travel mm : 12.30
Tolerance mm : ± 0.10

Rated speed rpm : 850
rack travel mm : 13.80
Tolerance mm : ± 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1700
rack travel mm : 14.40
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1050
rack travel mm : 8.70
Tolerance mm : ± 0.20

Rated speed rpm : 1050

Pressure hPa : 420
rack travel mm : 9.70
Tolerance mm : ± 0.20

Pressure hPa : 830
rack travel mm : 12.40
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1700
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 353.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

BREAKAWAY

Rack travel in mm : 13.40
Rated speed rpm : 1085
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 8.70
Tolerance mm : ± 0.30
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 4.90
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.08.94
Test oil : ISO 4113

Combination No. : 0 402 646 797

Injection pump
Pump designation : PE6P12QA320LS7858
EP type number : 0 412 626 875

Governor
Governor design. : RQ300/1050PA1030-13
Governor no. : 0 421 801 730

Cust. part No. : 0230748902

Customer-spec. information
Customer : MB-NFZ
Motor : OM401 LA
Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. L/h : 110
Tolerance L/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 11.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 173.0

Tolerance
 cm³/1000 strokes : + 1.0

 Check tolerance
 cm³/1000S. : + 4.0

 Spreed
 Tolerance
 cm³/1000 strokes : 5.0

 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 5.20
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 19.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 2.48
 Tolerance mm : + 0.10

 Rated speed rpm : 1108
 guide sleeve
 travel mm : 6.39
 Tolerance mm : + 0.10

 Rated speed rpm : 1050
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

 Rated speed rpm : 392
 guide sleeve
 travel mm : 4.64
 Tolerance mm : + 0.10

 Rated speed rpm : 490
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

Rated speed rpm : 1280
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600
 Rack travel in mm : 20.00
 Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 700
 Del. quantity
 cm³/1000 strokes : 173.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 91.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.25
 Rated speed rpm : 1098
 Tolerance 1/min : + 8

 rack travel mm : 4.00
 Rated speed rpm : 1175
 Tolerance 1/min : + 15

 rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 74.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 380
Tolerance 1/min : ± 20

Rated speed rpm : 200

CRT mm min. : > 7.60

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 11.25
Tolerance mm : ± 0.05

Rated speed rpm : 550
rack travel mm : 11.25
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 700
rack travel mm : 11.25
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.30
Tolerance mm : ± 0.15

Rated speed rpm : 400

Pressure hPa : 250
rack travel mm : 10.90
Tolerance mm : ± 0.10

Pressure hPa : 200
rack travel mm : 10.55
Tolerance mm : ± 0.10

F07

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 164.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 133.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 10.25
Rated speed rpm : 1098
Tolerance 1/min : ± 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 135.0

Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000s. : ± 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : ± 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.04.96
Test oil : ISO 4113

Combination No. : 0 402 648 920

Injection pump
Pump designation : PE8P120A320LS7844
EP type number : 0 412 628 860

Governor
Governor design. : RQV350...1050PA870
 : -16
Governor no. : 0 421 813 953

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM442 LA
Power KW : 370.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

F09

Test lines : 1 680 750 075
Outside diameter : 8.0
x inside diameter : 2.5
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 14.30

Rack travel in mm : 14.30
Tolerance mm : ± 0.10
Tolerance mm : ± 0.10

Del. quantity cm ³ /1000 strokes	: 257.5
<hr/>	
Tolerance cm ³ /1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm ³ /1000S.	: ± 4.0
<hr/>	
Spreed Tolerance cm ³ /1000 strokes	: 5.0
<hr/>	
Check tolerance cm ³ /1000S.	: 9.0
Rated speed rpm	: 350
Rack travel in mm	: 5.80
Tolerance mm	: ± 0.30
Del. quantity cm ³ /1000 strokes	: 19.0
Tolerance cm ³ /1000 strokes	: ± 3.0
Check tolerance cm ³ /1000S.	: ± 6.0
Spreed Tolerance cm ³ /1000 strokes	: 6.0
Check tolerance cm ³ /1000S.	: 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 350
guide sleeve travel mm	: 1.55
Tolerance mm	: ± 0.25
Rated speed rpm	: 1108
guide sleeve travel mm	: 8.05
Tolerance mm	: ± 0.25
Rated speed rpm	: 570
guide sleeve travel mm	: 3.55
Tolerance mm	: ± 0.25
Rated speed rpm	: 900
guide sleeve travel mm	: 5.65
Tolerance mm	: ± 0.25
Rated speed rpm	: 1204

F10

guide sleeve travel mm	: 10.05
Tolerance mm	: ± 0.25

GUIDE SLEEVE POSITION

Rated speed rpm	: 1125
Rack travel in mm	: 17.25
Tolerance mm	: ± 0.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 600
Aneroid pressure hPa	: 1100
Del. quantity cm ³ /1000 strokes	: 257.5
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Spreed Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 119.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 14.30
Rated speed rpm	: 1095
Tolerance 1/min	: ± 5
rack travel mm	: 4.00
Rated speed rpm	: 1195
Tolerance 1/min	: ± 15
rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1300

LOW IDLE

control lever position degree	: 67.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.80
Tolerance mm : +- 0.10

Rated speed rpm : 250
CRT mm min. : > 6.60

Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 14.30
Tolerance mm : +- 0.10

Rated speed rpm : 1050
rack travel mm : 15.30
Tolerance mm : +- 0.10

Rated speed rpm : 800
rack travel mm : 15.30
Tolerance mm : +- 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

MEASUREMENT

Pressure hPa : 290
rack travel mm : -5.50
Tolerance mm : +- 0.05

Pressure hPa : 780
rack travel mm : -1.50
Tolerance mm : +- 0.10

Pressure hPa : 1450
rack travel mm : 0.30
Tolerance mm : +- 0.05

Pressure hPa : 1550
rack travel mm : 0.70
Tolerance mm : +- 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 270

Check speed 1/min : > 80

F11

Check speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1800
Rated speed rpm : 1050
Del. quantity
cm3/1000 strokes : 272.0
Tolerance
cm3/1000 strokes : +- 1.5
Check tolerance
cm3/1000S. : +- 4.5

Aneroid pressure
hPa : 1800
Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 274.0
Tolerance
cm3/1000 strokes : +- 2.0
Check tolerance
cm3/1000S. : +- 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 130.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 4.0

BREAKAWAY

Rack travel in mm : 14.30
Rated speed rpm : 1095
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 270.0
Tolerance
cm3/1000 strokes : +- 10.0
Check tolerance
cm3/1000S. : +- 14.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 5.80
Tolerance mm : ± 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.04.96
Test oil : ISO 4113

Combination No. : 0 402 736 888

Injection pump
Pump designation : PES6P120A120RS7390
EP type number : 0 412 726 945

Governor
Governor design. : RQV350...1100PA1237K
Governor no. : 0 421 815 475

Cust. part No. : 3283278

Customer-spec. information
Customer : CUMMINS
Motor : 6CTAA
Power KW : 162.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 90
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery blocking

°NW after s.o.d. : 7.70
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.60

Tolerance mm : \pm 0.05

 Del. quantity
 cm³/1000 strokes : 164.0

 Tolerance
 cm³/1000 strokes : \pm 1.0

 Check tolerance
 cm³/1000S. : \pm 4.0

 Spreed
 Tolerance
 cm³/1000 strokes : 5.0

 Check tolerance
 cm³/1000S. : 9.0

 Rated speed rpm : 350

 Rack travel in mm : 4.80
 Tolerance mm : \pm 0.30
 Del. quantity
 cm³/1000 strokes : 18.0
 Tolerance
 cm³/1000 strokes : \pm 3.0
 Check tolerance
 cm³/1000S. : \pm 5.0
 Spreed
 Tolerance
 cm³/1000 strokes : 7.0
 Check tolerance
 cm³/1000S. : 11.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
 guide sleeve
 travel mm : 1.93
 Tolerance mm : \pm 0.20

 Rated speed rpm : 1159
 guide sleeve
 travel mm : 10.27
 Tolerance mm : \pm 0.15

 Rated speed rpm : 710
 guide sleeve
 travel mm : 5.79
 Tolerance mm : \pm 0.25

 Rated speed rpm : 420
 guide sleeve
 travel mm : 4.28
 Tolerance mm : \pm 0.25

Rated speed rpm : 1380
 guide sleeve
 travel mm : 13.50
 Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1200

 Rack travel in mm : 11.60
 Tolerance mm : \pm 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 164.0
 Tolerance
 cm³/1000 strokes : \pm 1.0
 Check tolerance
 cm³/1000S. : \pm 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 69.0
 tolerance degree : \pm 4.0

control lever
 position degree : 123.0
 tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.60
 Rated speed rpm : 1145
 Tolerance 1/min : \pm 5

 rack travel mm : 4.00
 Rated speed rpm : 1230
 Tolerance 1/min : \pm 15

 rack travel mm : 0.50
 Tolerance mm : \pm 0.50
 Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 73.0
tolerance degree : ± 4.0

control lever
position degree : 21.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 4.80
Tolerance mm : ± 0.10

Rated speed rpm : 250
CRT mm min. : > 7.70

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.60
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 12.30
Tolerance mm : ± 0.10

Rated speed rpm : 900
rack travel mm : 12.35
Tolerance mm : ± 0.15

Rated speed rpm : 600
rack travel mm : 12.00
Tolerance mm : ± 0.15

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1500
rack travel mm : 12.60
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1100

F15

rack travel mm : 10.25
Tolerance mm : ± 0.20

Rated speed rpm : 1100

Pressure hPa : 170
rack travel mm : 11.10
Tolerance mm : ± 0.20

Pressure hPa : 330
rack travel mm : 12.10
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 280

Check
speed 1/min : > 80
Check
speed 1/min : < 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 155.0

Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Speed
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 16.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 107.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 11.60
Rated speed rpm : 1145
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 180.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 4.80
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.04.96
Test oil : ISO 4113

Combination No. : 0 402 736 889

Injection pump
Pump designation : PES6P120A12ORS7390
EP type number : 0 412 726 945

Governor
Governor design. : RQV350...1100PA1244K
Governor no. : 0 421 815 477

Cust. part No. : 3283279

Customer-spec. information
Customer : CUMMINS
Motor : 6CTAA
Power KW : 179.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity min. l/h : 90
Tolerance l/h : ± 10.0

Test nozzle holder assembly : 1 688 901 101

Opening pressure bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.30
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check tolerance °NW : ± 0.50

Start of delivery blocking

°NW after s.o.d. : 7.70
Tolerance : ± 0.50
Check tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.00

Tolerance mm : + 0.05

 Del. quantity
 cm³/1000 strokes : 173.0

 Tolerance
 cm³/1000 strokes : + 1.0

 Check tolerance
 cm³/1000S. : + 4.0

 Spreed
 Tolerance
 cm³/1000 strokes : 5.0

 Check tolerance
 cm³/1000S. : 9.0

 Rated speed rpm : 350

 Rack travel in mm : 4.60
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 18.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 5.0
 Spreed
 Tolerance
 cm³/1000 strokes : 7.0
 Check tolerance
 cm³/1000S. : 11.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
 guide sleeve
 travel mm : 1.93
 Tolerance mm : + 0.20

 Rated speed rpm : 1159
 guide sleeve
 travel mm : 10.27
 Tolerance mm : + 0.15

 Rated speed rpm : 710
 guide sleeve
 travel mm : 5.79
 Tolerance mm : + 0.25

 Rated speed rpm : 420
 guide sleeve
 travel mm : 4.28
 Tolerance mm : + 0.25

Rated speed rpm : 1380
 guide sleeve
 travel mm : 13.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1195

 Rack travel in mm : 12.00
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 173.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 68.0
 tolerance degree : + 4.0

 control lever
 position degree : 122.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.00
 Rated speed rpm : 1145
 Tolerance 1/min : + 5

 rack travel mm : 4.00
 Rated speed rpm : 1230
 Tolerance 1/min : + 15

 rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 74.0
tolerance degree : ± 4.0

control lever
position degree : 20.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 4.60
Tolerance mm : ± 0.10

Rated speed rpm : 250

CRT mm min. : > 7.50

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 13.00
Tolerance mm : ± 0.05

Rated speed rpm : 700
rack travel mm : 13.15
Tolerance mm : ± 0.10

Rated speed rpm : 500
rack travel mm : 12.25
Tolerance mm : ± 0.15

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 700
Pressure hPa : 1500
rack travel mm : 13.20
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 700
rack travel mm : 10.20
Tolerance mm : ± 0.20

Rated speed rpm : 700

Pressure hPa : 140
rack travel mm : 11.10
Tolerance mm : ± 0.20

Pressure hPa : 300
rack travel mm : 12.60
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 290

Check
speed 1/min : > 80
Check
speed 1/min : < 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 171.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 109.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 1145
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 180.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 4.60
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.04.96
Test oil : ISO 4113

Combination No. : 0 402 736 892

Injection pump
Pump designation : PES6P120A12DRS7400
EP type number : 0 412 726 950

Governor
Governor design. : RQV350...1100PA1244
: -1K
Governor no. : 0 421 815 488

Cust. part No. : 3282610

Customer-spec. information
Customer : CUMMINS
Motor : 6CTAA
Power KW : 221.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 100
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

F21

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery blocking

°NW after s.o.d. : 7.70
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.60

Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 209.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.10
Tolerance mm : + 0.30
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 5.0
Speed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
guide sleeve
travel mm : 1.93
Tolerance mm : + 0.20

Rated speed rpm : 1159
guide sleeve
travel mm : 10.28
Tolerance mm : + 0.15

Rated speed rpm : 710
guide sleeve
travel mm : 5.80
Tolerance mm : + 0.25

Rated speed rpm : 430
guide sleeve
travel mm : 4.33
Tolerance mm : + 0.25

Rated speed rpm : 1380
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1210
Rack travel in mm : 13.60
Tolerance mm : + 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 209.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 66.0
tolerance degree : + 4.0

control lever
position degree : 120.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.60
Rated speed rpm : 1145
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1245
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 73.0
tolerance degree : ± 4.0

control lever
position degree : 20.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.10
Tolerance mm : ± 0.10

Rated speed rpm : 250

CRT mm min. : > 8.10

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 14.60
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 14.20
Tolerance mm : ± 0.10

Rated speed rpm : 900
rack travel mm : 14.50
Tolerance mm : ± 0.15

Rated speed rpm : 600
rack travel mm : 14.10
Tolerance mm : ± 0.15

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1500
rack travel mm : 14.60
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1100

F23

rack travel mm : 10.45
Tolerance mm : ± 0.20

Rated speed rpm : 1100

Pressure hPa : 880
rack travel mm : 13.20
Tolerance mm : ± 0.20

Pressure hPa : 240
rack travel mm : 11.20
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 290

Check
speed 1/min : > 80
Check
speed 1/min : < 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 198.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Speed
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 16.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 111.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 13.60
Rated speed rpm : 1145
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : +- 0.50
Del. quantity
cm³/1000 strokes : 180.0
Tolerance
cm³/1000 strokes : +- 20.0
Check tolerance
cm³/1000S. : +- 24.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 5.10
Tolerance mm : +- 0.30
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 5.0
Spreed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.04.96
Test oil : ISO 4113
Combination No. : 0 402 736 893
Injection pump
Pump designation : PES6P120A120RS7400
EP type number : 0 412 726 950
Governor
Governor design. : RQV350...1100PA1244
 : -2K
Governor no. : 0 421 815 489
Cust. part No. : 3282609

Customer-spec. information
Customer : CUMMINS
Motor : 6CTAA
Power KW : 206.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 2 417 413 086
Inlet press. bar : 1.5
Overflow quantity
min. L/h : 125
Tolerance L/h : +- 20.0
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0
Prestroke mm : 3.30
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10
Rack travel in mm : 20.50
Tolerance mm : +- 0.50
Firing order : 1- 5- 3- 6- 2-
 : 4
Phasing : 0-60-120-180-240
 : -300
Tolerance : +- 0.30
Check
tolerance °NW : +- 0.50
Start of delivery blocking
°NW after s.o.d. : 7.70
Tolerance : +- 0.50
Check
tolerance °NW : +- 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.80
Tolerance mm : +- 0.05

Del. quantity
cm³/1000 strokes : 211.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.10
Tolerance mm : +- 0.30

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 5.0

Spread
Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
guide sleeve
travel mm : 1.93
Tolerance mm : +- 0.20

Rated speed rpm : 1159
guide sleeve
travel mm : 10.28
Tolerance mm : +- 0.15

Rated speed rpm : 710
guide sleeve
travel mm : 5.79
Tolerance mm : +- 0.25

Rated speed rpm : 500

guide sleeve
travel mm : 4.70
Tolerance mm : +- 0.25

Rated speed rpm : 1380
guide sleeve
travel mm : 13.50
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1215

Rack travel in mm : 13.30
Tolerance mm : +- 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 211.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 66.0
tolerance degree : +- 4.0

control lever
position degree : 122.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 13.80
Rated speed rpm : 1145
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1245
Tolerance 1/min : +- 15

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 73.0
tolerance degree : ± 4.0

control lever
position degree : 20.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.10
Tolerance mm : ± 0.10

Rated speed rpm : 250

CRT mm min. : > 8.20

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 14.80
Tolerance mm : ± 0.05

Rated speed rpm : 650
rack travel mm : 14.20
Tolerance mm : ± 0.10

Rated speed rpm : 900
rack travel mm : 14.70
Tolerance mm : ± 0.15

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1500
rack travel mm : 14.80
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1050
rack travel mm : 10.40
Tolerance mm : ± 0.20

Rated speed rpm : 1050
Pressure hPa : 880
rack travel mm : 13.20
Tolerance mm : ± 0.20

Pressure hPa : 240
rack travel mm : 11.20
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 280

Check
speed 1/min : > 80
Check
speed 1/min : < 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 197.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 16.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 111.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 13.80
Rated speed rpm : 1145
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 180.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 5.10
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.04.96
Test oil : ISO 4113

Combination No. : 0 402 736 894

Injection pump
Pump designation : PES6P120A120RS7400
EP type number : 0 412 726 950

Governor
Governor design. : RQV350...1200PA1261
Governor no. : 0 421 815 495

Cust. part No. : 3282766

Customer-spec. information
Customer : CUMMINS
Motor : 6CTAA
Power KW : 191.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity
min. L/h : 125
Tolerance L/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery blocking

°NW after s.o.d. : 7.70
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.95

Tolerance mm : \pm 0.05

 Del. quantity
 cm³/1000 strokes : 190.0

 Tolerance
 cm³/1000 strokes : \pm 1.0

 Check tolerance
 cm³/1000S. : \pm 4.0

 Spreed
 Tolerance
 cm³/1000 strokes : 5.0

 Check tolerance
 cm³/1000S. : 9.0

 Rated speed rpm : 350

 Rack travel in mm : 5.10
 Tolerance mm : \pm 0.30
 Del. quantity
 cm³/1000 strokes : 25.0
 Tolerance
 cm³/1000 strokes : \pm 3.0
 Check tolerance
 cm³/1000S. : \pm 5.0
 Spreed
 Tolerance
 cm³/1000 strokes : 7.0
 Check tolerance
 cm³/1000S. : 11.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
 guide sleeve
 travel mm : 1.93
 Tolerance mm : \pm 0.20

 Rated speed rpm : 1258
 guide sleeve
 travel mm : 10.14
 Tolerance mm : \pm 0.15

 Rated speed rpm : 766
 guide sleeve
 travel mm : 5.91
 Tolerance mm : \pm 0.25

 Rated speed rpm : 450
 guide sleeve
 travel mm : 4.49
 Tolerance mm : \pm 0.25

Rated speed rpm : 1520
 guide sleeve
 travel mm : 13.50
 Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1340

 Rack travel in mm : 12.60
 Tolerance mm : \pm 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 190.0
 Tolerance
 cm³/1000 strokes : \pm 1.0
 Check tolerance
 cm³/1000S. : \pm 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 66.0
 tolerance degree : \pm 4.0

control lever
 position degree : 120.0
 tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.90
 Rated speed rpm : 1245
 Tolerance 1/min : \pm 5

rack travel mm : 4.00
 Rated speed rpm : 1360
 Tolerance 1/min : \pm 15

rack travel mm : 0.50
 Tolerance mm : \pm 0.50
 Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 74.0
tolerance degree : ± 4.0

control lever
position degree : 20.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.10
Tolerance mm : ± 0.10

Rated speed rpm : 250

CRT mm min. : > 8.20

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 13.95
Tolerance mm : ± 0.05

Rated speed rpm : 600
rack travel mm : 13.40
Tolerance mm : ± 0.10

Rated speed rpm : 750
rack travel mm : 14.05
Tolerance mm : ± 0.15

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1150
Pressure hPa : 1500
rack travel mm : 13.95
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1150
rack travel mm : 10.40
Tolerance mm : ± 0.20

Rated speed rpm : 1150

G03

Pressure hPa : 880
rack travel mm : 13.20
Tolerance mm : ± 0.20

Pressure hPa : 240
rack travel mm : 11.20
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 280

Check
speed 1/min : > 80
Check
speed 1/min : < 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 600

Del. quantity
cm³/1000 strokes : 176.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Spreed
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 16.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 111.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 12.90
Rated speed rpm : 1245
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 180.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 5.10
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.04.96
Test oil : ISO 4113
Combination No. : 0 402 746 608
Injection pump
Pump designation : PES6P120A32ORS7359
EP type number : 0 412 726 925
Governor
Governor design. : RQ275/1050PA1275
Governor no. : 0 421 801 805
Cust. part No. : CCEP 5157A 66-222

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDRO62045 F/C41
Power KW : 152.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 078
Inlet press. bar : 2.5
Tolerance bar : ± 0.1
Overflow quantity
min. l/h : 220
Tolerance l/h : ± 10.0
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 20.25
Tolerance mm : ± 0.75
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery mark
°NW after s.o.d. : -0.45
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 11.60
 Tolerance mm : +- 0.05

Del. quantity
 cm3/1000 strokes : 173.0

Tolerance
 cm3/1000 strokes : +- 1.0

Check tolerance
 cm3/1000S. : +- 4.0

Speed
 Tolerance
 cm3/1000 strokes : 5.0

Check tolerance
 cm3/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -5.20
 Tolerance mm : +- 0.20

Del. quantity
 cm3/1000 strokes : 31.0

Tolerance
 cm3/1000 strokes : +- 2.0

Check tolerance
 cm3/1000S. : +- 5.0

Speed
 Tolerance
 cm3/1000 strokes : 8.0

Check tolerance
 cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275
 guide sleeve
 travel mm : 2.44
 Tolerance mm : +- 0.20

Rated speed rpm : 1122
 guide sleeve
 travel mm : 7.06
 Tolerance mm : +- 0.15

Rated speed rpm : 1050
 guide sleeve
 travel mm : 6.70
 Tolerance mm : +- 0.10

Rated speed rpm : 648

guide sleeve
 travel mm : 6.18
 Tolerance mm : +- 0.10

Rated speed rpm : 375
 guide sleeve
 travel mm : 5.00
 Tolerance mm : +- 0.10

Rated speed rpm : 450
 guide sleeve
 travel mm : 6.00
 Tolerance mm : +- 0.10

Rated speed rpm : 1300
 guide sleeve
 travel mm : 11.50
 Tolerance mm : +- 0.50

Rated speed rpm : 873
 guide sleeve
 travel mm : 6.52
 Tolerance mm : +- 0.10

GUIDE SLEEVE POSITION

Rated speed rpm : 500

Rack travel in mm : 20.00
 Tolerance mm : +- 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 1000

Del. quantity
 cm3/1000 strokes : 173.0

Tolerance
 cm3/1000 strokes : +- 1.0

Check tolerance
 cm3/1000S. : +- 4.0

Speed
 Tolerance
 cm3/1000 strokes : 5.0

Check tolerance
 cm3/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 276.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : -1.00
 Rated speed rpm : 1115
 Tolerance 1/min : + 5

 rack travel mm : -7.60
 Rated speed rpm : 1205
 Tolerance 1/min : + 15

 rack travel mm : -11.10
 Tolerance mm : + 0.50
 Rated speed rpm : 1350

LOW IDLE

control lever
 position degree : 256.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 275
 rack travel mm : -5.20
 Tolerance mm : + 0.10

rack travel mm : -9.60
 Rated speed rpm : 375
 Tolerance 1/min : + 20

Rated speed rpm : 200

CRT mm min. : < -3.30

TORQUE CONTROL

Rated speed rpm : 1050

Rated speed rpm : 600
 rack travel mm : 1.20
 Tolerance mm : + 0.10

Rated speed rpm : 800
 rack travel mm : 0.75
 Tolerance mm : + 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
 Pressure hPa : 1000
 rack travel mm : 1.20
 Tolerance mm : + 0.10

MEASUREMENT

Pressure hPa : -
 Rated speed rpm : 500
 rack travel mm : -0.65
 Tolerance mm : + 0.20

Rated speed rpm : 500

Pressure hPa : 280
 rack travel mm : 0.80
 Tolerance mm : + 0.15

Pressure hPa : 160
 Tolerance mm : + 0.05

START CUT-OUT

Rated speed rpm : > 100
 Rated speed rpm : < 195

Check
 speed 1/min : > 80
 Check
 speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1000
 Rated speed rpm : 600
 Del. quantity
 cm³/1000 strokes : 195.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 146.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : -1.00
 Rated speed rpm : 1115
 Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 275
rack travel mm : -5.20
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.04.96
Test oil : ISO 4113
Combination No. : 0 402 746 640
Injection pump
Pump designation : PES6P120A32ORS7359
EP type number : 0 412 726 925
Governor
Governor design. : RQV300...1050PA1191
Governor no. : 0 421 814 114
Cust. part No. : CCEP 5147B 66-223

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR 06.20.45 C4
Power KW : 188.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 078
Inlet press. bar : 2.5
Tolerance bar : ± 0.1
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

G09

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.70
Tolerance mm : ± 0.50
Check
tolerance mm : ± 0.10
Rack travel in mm : 20.25
Tolerance mm : ± 0.75
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery mark
°NW after s.o.d. : -0.45
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700
Rack travel in mm : 12.50
Tolerance mm : ± 0.05
Del. quantity
cm3/1000 strokes : 188.0

<hr/>	
Tolerance	
cm ³ /1000 strokes	: + 1.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: + 4.0
<hr/>	
Spreed	
Tolerance	
cm ³ /1000 strokes	: 5.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: 9.0
<hr/>	
Rated speed rpm	: 300
<hr/>	
Rack travel in mm	: -6.00
Tolerance mm	: + 0.20
Del. quantity	
cm ³ /1000 strokes	: 34.0
Tolerance	
cm ³ /1000 strokes	: + 2.0
Check tolerance	
cm ³ /1000S.	: + 5.0
Spreed	
Tolerance	
cm ³ /1000 strokes	: 8.0
Check tolerance	
cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.33
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 1140
guide sleeve	
travel mm	: 8.49
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 754
guide sleeve	
travel mm	: 6.10
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 365
guide sleeve	
travel mm	: 2.40
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 415
guide sleeve	
travel mm	: 3.28

Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 460
guide sleeve	
travel mm	: 3.86
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 1460
guide sleeve	
travel mm	: 11.50
Tolerance mm	: + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1230
<hr/>	
Rack travel in mm	: 11.70
Tolerance mm	: + 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 700
Aneroid pressure	
hPa	: 1000
Del. quantity	
cm ³ /1000 strokes	: 188.0
Tolerance	
cm ³ /1000 strokes	: + 1.0
Check tolerance	
cm ³ /1000S.	: + 4.0
Spreed	
Tolerance	
cm ³ /1000 strokes	: 5.0
Check tolerance	
cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 304.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: -1.00
Rated speed rpm	: 1135
Tolerance 1/min	: + 5
<hr/>	
rack travel mm	: -8.50
Rated speed rpm	: 1290
Tolerance 1/min	: + 15
<hr/>	
rack travel mm	: -12.00
Tolerance mm	: + 0.50
Rated speed rpm.	: 1400

LOW IDLE

control lever
position degree : 268.0
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -6.00
Tolerance mm : +- 0.10

Rated speed rpm : 200

CRT mm max. : < -3.60

Rated speed rpm : 370

TORQUE CONTROL

Rated speed rpm : 700

Rated speed rpm : 1050
Tolerance mm : +- 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -1.35
Tolerance mm : +- 0.20

Rated speed rpm : 500

Pressure hPa : 140
rack travel mm : -0.75
Tolerance mm : +- 0.15

Pressure hPa : 200
rack travel mm : -0.35
Tolerance mm : +- 0.05

START CUT-OUT

Rated speed rpm : > 100

G11

Rated speed rpm : < 220

Check
speed 1/min : > 80

Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000

Rated speed rpm : 1050

Del. quantity
cm³/1000 strokes : 192.0

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000s. : +- 6.0

Aneroid pressure
hPa : -

Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 148.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000s. : +- 4.0

BREAKAWAY

Rack travel in mm : -1.00

Rated speed rpm : 1135

Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100

Tolerance mm : +- 0.75

Del. quantity
cm³/1000 strokes : 155.0

Tolerance
cm³/1000 strokes : +- 15.0

Check tolerance
cm³/1000s. : +- 19.0

LOW IDLE

Rated speed rpm : 300

rack travel mm : -6.00

Tolerance mm : +- 0.20

Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.04.96
Test oil : ISO 4113
Combination No. : 0 402 196 702
Injection pump
Pump designation : PES6P120A72ORS3184
EP type number : 0 412 026 727
Governor
Governor design. : RE24
Governor no. : 0 421 890 006

Cust. part No. : RE 47396

Customer-spec. information
Customer : DEERE
Motor : 6076 F030
Power KW : 205.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 077
Inlet press. bar : 1.5
Tolerance bar : ± 0.1
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Tolerance mm : ± 0.03
Check
tolerance mm : ± 0.10
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50

Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 10.50
Tolerance : ± 0.50

Check tolerance °NW : +- 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack travel : 15.00
Tolerance mm : +- 0.50
Difference ° CS : 6.00

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25

Check tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100
Uact V : 2.710
Del. quantity cm³/1000 strokes : 141.0
Tolerance cm³/1000 strokes : +- 1.0
Check tolerance cm³/1000s. : +- 4.0
Speed Tolerance cm³/1000 strokes : 5.0
Check tolerance cm³/1000s. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
Uact V : 2.710
Del. quantity cm³/1000 strokes : 142.0

Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0

Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 425
Uact V : 1.400

Del. quantity
cm³/1000 strokes : 21.0

Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0

Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

TEST POINT L1

Rated speed rpm : 425
Uact V : 1.610
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.060

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.03.96
Test oil : ISO 4113

Combination No. : 0 402 196 709

Injection pump
Pump designation : PES6P120A720RS3354
EP type number : 0 412 026 781

Governor
Governor design. : RE30
Governor no. :

Cust. part No. : RE 67771

Customer-spec. information
Customer : DEERE
Motor : 6081HRW06
Power KW : 149.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Tolerance mm : ± 0.03

Check
tolerance mm : ± 0.10
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50

Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30
Check
tolerance *NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : 8.50
Tolerance : ± 0.50

Check tolerance °NW : + 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack travel : 15.00
Tolerance mm : + 0.50
Difference ° CS : 2.50

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25

Check tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100
Uact V : 2.880
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000s. : +/- 3.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
Uact V : 2.880
Del. quantity
cm³/1000 strokes : 141.5

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 6.0

Spreed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 425

Uact V : 1.610

Del. quantity
cm³/1000 strokes : 22.0

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 6.0

Spreed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

TEST POINT L1

Rated speed rpm : 425

Uact V : 1.610

Tolerance Volt : +- 0.060

Check tolerance
Volt : +- 0.060

STARTING FUEL DELIVERY

Rated speed rpm : 100

Uact V : 4.600

Del. quantity
cm³/1000 strokes : 105.0

Tolerance
cm³/1000 strokes : +- 10.0

Check tolerance
cm³/1000S. : +- 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.03.96
Test oil : ISO 4113
Combination No. : 0 402 196 710
Injection pump
Pump designation : PES6P120A72ORS3354
EP type number : 0 412 026 781
Governor
Governor design. : RE30
Governor no. :

Cust. part No. : RE 67448

Customer-spec. information
Customer : DEERE
Motor : 6081AT002
Power KW : 135.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 077
Inlet press. bar : 2.0
Tolerance bar : ± 0.1
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Prestroke mm : 3.60
Prestroke mm : 3.60
Tolerance mm : ± 0.05
Tolerance mm : ± 0.03
Check
tolerance mm : ± 0.10
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance *NW : ± 0.75
Start of delivery mark
*NW after s.o.d. : 7.00
Tolerance : ± 0.50

Check tolerance °NW : +- 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

travel : 15.00

Tolerance mm : +- 0.50

Difference ° CS : 2.50

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100

CRT mm : 13.00

Tolerance mm : +/- 0.05

Check tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700

CRT mm : 6.15

Tolerance mm : +/- 0.25

Check tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100

CRT mm : 12.50

Tolerance mm : +/- 0.05

Check tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700

CRT mm : 5.50

Tolerance mm : +/- 0.25

Check tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75

Tolerance mm : +/- 0.25

Check tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR

(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60

Amplitude V : 1.4

Tolerance V : +/- 0.6

Check tolerance V : +/- 1.20

Engine speed min⁻¹: 600

Difference

Amplitude to

Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100

Uact V : 2.880

Del. quantity

cm³/1000 strokes : 140.0

Tolerance

cm³/1000 strokes : +- 1.0

Check tolerance

cm³/1000S. : +- 3.0

Spreed

Tolerance

cm³/1000 strokes : 5.0

Check tolerance

cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700

Uact V : 2.880

Del. quantity

cm³/1000 strokes : 141.5

Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 425
Uact V : 1.610

Del. quantity
cm³/1000 strokes : 22.0

Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0

Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

TEST POINT L1

Rated speed rpm : 425
Uact V : 1.610
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.060

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.600
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.04.96
Test oil : ISO 4113
Combination No. : 0 402 746 613
Injection pump
Pump designation : PES6P120A320RS7372
EP type number : 0 412 726 940
Governor
Governor design. : RQV250...1250PA1283K
Governor no. : 0 421 815 516

Cust. part No. : 3866785

Customer-spec. information
Customer : CDC
Motor : 6BTA
Power KW : 164.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 2 417 413 086
Inlet press. bar : 2.0
Tolerance bar : + 0.1
Test nozzle holde
assembly : 1 688 901 103
Opening pressure
bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0
Prestroke mm : 4.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check
tolerance °NW : + 0.75
Start of delivery blocking
°NW after s.o.d. : 11.50
Tolerance : + 0.50
Check
tolerance °NW : + 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250
Rack travel in mm : 12.05
Tolerance mm : + 0.05

Del. quantity	
cm ³ /1000 strokes	: 143.5
<hr/>	
Tolerance	
cm ³ /1000 strokes	: +- 1.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: +- 4.0
<hr/>	
Spreed	
Tolerance	
cm ³ /1000 strokes	: 5.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: 9.0
<hr/>	
Del. quantity	
cm ³ /1000 strokes	: 28.5
Tolerance	
cm ³ /1000 strokes	: +- 3.0
Check tolerance	
cm ³ /1000S.	: +- 5.0
Spreed	
Tolerance	
cm ³ /1000 strokes	: 8.0
Check tolerance	
cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 275
guide sleeve	
travel mm	: 1.39
Tolerance mm	: +- 0.20
<hr/>	
Rated speed rpm	: 1305
guide sleeve	
travel mm	: 7.93
Tolerance mm	: +- 0.15
<hr/>	
Rated speed rpm	: 864
guide sleeve	
travel mm	: 5.36
Tolerance mm	: +- 0.25
<hr/>	
Rated speed rpm	: 480
guide sleeve	
travel mm	: 3.18
Tolerance mm	: +- 0.25
<hr/>	
Rated speed rpm	: 1860
guide sleeve	
travel mm	: 13.50
Tolerance mm	: +- 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1250
Aneroid pressure	
hPa	: 900
Del. quantity	
cm ³ /1000 strokes	: 143.5
Tolerance	
cm ³ /1000 strokes	: +- 1.0
Check tolerance	
cm ³ /1000S.	: +- 4.0
Spreed	
Tolerance	
cm ³ /1000 strokes	: 5.0
Check tolerance	
cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 114.0
tolerance degree	: +- 4.0

RATED SPEED

rack travel mm	: 11.00
Rated speed rpm	: 1310
Tolerance 1/min	: +- 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1475
Tolerance 1/min	: +- 15
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: +- 0.50
Rated speed rpm	: 1600

LOW IDLE

control lever	
position degree	: 76.0
tolerance degree	: +- 4.0

Testing:

Rated speed rpm	: 300
rack travel mm	: 7.40
Tolerance mm	: +- 0.20
<hr/>	
Rated speed rpm	: 275
CRT mm min.	: > 8.20

Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 12.05
Tolerance mm : +- 0.05

Rated speed rpm : 900
rack travel mm : 11.80
Tolerance mm : +- 0.10

Rated speed rpm : 800
rack travel mm : 12.00
Tolerance mm : +- 0.10

Rated speed rpm : 600
rack travel mm : 11.40
Tolerance mm : +- 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 900

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1250
rack travel mm : 10.00
Tolerance mm : +- 0.20

Rated speed rpm : 1250

Pressure hPa : 550
rack travel mm : 11.10
Tolerance mm : +- 0.20

Pressure hPa : 265
rack travel mm : 10.20
Tolerance mm : +- 0.20

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 250

Check speed 1/min : > 80
Check speed 1/min : < 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 90.5
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 3.0

BREAKAWAY

Rack travel in mm : 11.00
Rated speed rpm : 1310
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : +- 0.50
Del. quantity
cm³/1000 strokes : 184.5
Tolerance
cm³/1000 strokes : +- 20.0
Check tolerance
cm³/1000S. : +- 25.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 28.5
Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.96
Test oil : ISO 4113

Combination No. : 9 400 030 731

Injection pump
Pump designation : PES6A95D32D/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...1100A0C843R
Governor no. : 9 420 034 709

Cust. part No. : 3929406

Customer-spec. information
Customer : CDC
Motor : 6BT
Power KW : 100.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 2.85
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

*NW after s.o.d. : 7.50
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.25
Tolerance mm : + 0.05

Del. quantity cm ³ /1000 strokes	:	94.0
<hr/>		
Tolerance cm ³ /1000 strokes	:	+ 1.0
<hr/>		
Check tolerance cm ³ /1000S.	:	+ 3.0
<hr/>		
Spreed Tolerance cm ³ /1000 strokes	:	4.0
<hr/>		
Check tolerance cm ³ /1000S.	:	6.5
<hr/>		
Del. quantity cm ³ /1000 strokes	:	18.5
Tolerance cm ³ /1000 strokes	:	+ 2.0
Check tolerance cm ³ /1000S.	:	+ 4.5
Spreed Tolerance cm ³ /1000 strokes	:	6.0
Check tolerance cm ³ /1000S.	:	8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

governor spring pre-tension click setting x	:	5.00
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FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1100
Aneroid pressure hPa	:	900
Del. quantity cm ³ /1000 strokes	:	94.0
Tolerance cm ³ /1000 strokes	:	+ 1.0
Check tolerance cm ³ /1000S.	:	+ 3.0
Spreed Tolerance cm ³ /1000 strokes	:	4.0
Check tolerance cm ³ /1000S.	:	6.5

RATED SPEED

G27

rack travel mm	:	10.20
Rated speed rpm	:	1165
Tolerance 1/min	:	+ 5

rack travel mm	:	0.85
Tolerance mm	:	+ 0.55
Rated speed rpm	:	1300

rack travel mm	:	4.50
Rated speed rpm	:	1215

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm	:	475
rack travel mm	:	4.60

Testing:

Rated speed rpm	:	475
rack travel mm	:	5.10
Tolerance mm	:	+ 0.10

TORQUE CONTROL

Rated speed rpm	:	1100
rack travel mm	:	11.25
Tolerance mm	:	+ 0.05

Rated speed rpm	:	800
rack travel mm	:	12.00
Tolerance mm	:	+ 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm	:	800
Pressure hPa	:	900

MEASUREMENT

Pressure hPa	:	-
Rated speed rpm	:	800
rack travel mm	:	8.70
Tolerance mm	:	+ 0.10

Rated speed rpm	:	800
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Pressure hPa	:	600
rack travel mm	:	11.10
Tolerance mm	:	+ 0.20

Pressure hPa : 275
rack travel mm : 9.50
Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 107.5
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 65.5
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 3.0

BREAKAWAY

Rack travel in mm : 10.20
Rated speed rpm : 1165
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : +- 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 15.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 18.5

Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.04.96
Test oil : ISO 4113
Combination No. : 0 401 878 716
Injection pump
Pump designation : PE8P110A320LS3842-1
EP type number : 0 411 818 716
Governor
Governor design. : RSV675...1050POA823
: -9
Governor no. : 0 421 833 365

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM442
Power KW : 213.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Tolerance bar : + 0.1
Overflow quantity
min. l/h : 110
Tolerance l/h : + 10.0
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : + 1.5

H01

Test lines : 1 680 750 089
Outside diameter : 8.0
x inside diameter : 2.5
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1030

Rack travel in mm : 13.05
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 142.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.5

Spreed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.0

Rated speed rpm : 675

Rack travel in mm : 5.10
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 5.5

Spreed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1030
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 142.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.5

Spreed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.0

H02

CONTROL LEVER

control lever
position degree : 86.0
tolerance degree : + 4.0

LOW IDLE

control lever
position degree : 74.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 675
rack travel mm : 5.10
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 705
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 15.00

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1030
rack travel mm : 13.05
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 13.10
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 134.0

Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 5.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 14.0

LOW IDLE

Rated speed rpm : 675
rack travel mm : 5.10
Tolerance mm : +- 0.30
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 5.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.95
Test oil : ISO 4113
Combination No. : 0 402 646 625
Injection pump
Pump designation : PE6P120A320RS7300
EP type number : 0 412 626 886
Governor
Governor design. : RQV275...1000PA1077K
Governor no. : 0 421 815 358
Cust. part No. : 1280165

Customer-spec. information

Customer : DAF
Motor : WS 242 M
Power KW : 242.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.35
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 15.00
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 15.05
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 228.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 6.20
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275
guide sleeve
travel mm : 2.14
Tolerance mm : + 0.20

Rated speed rpm : 1045
guide sleeve
travel mm : 9.83
Tolerance mm : + 0.15

Rated speed rpm : 689
guide sleeve
travel mm : 6.43
Tolerance mm : + 0.25

Rated speed rpm : 284
guide sleeve
travel mm : 2.27
Tolerance mm : + 0.25

Rated speed rpm : 334
guide sleeve
travel mm : 3.08
Tolerance mm : + 0.25

Rated speed rpm : 400
guide sleeve
travel mm : 3.92
Tolerance mm : + 0.25

Rated speed rpm : 1310
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1140

Rack travel in mm : 14.00
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 228.0
Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 119.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 14.00
Rated speed rpm : 1037
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1165
Tolerance 1/min : + 15

rack travel mm : 0.70
Tolerance mm : + 0.70
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 75.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 275
rack travel mm : 5.30
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 395
Tolerance 1/min : ± 20

Rated speed rpm : 175

CRT mm min. : > 8.50^b

TORQUE CONTROL

Rated speed rpm : 980
rack travel mm : 15.05
Tolerance mm : ± 0.05

Rated speed rpm : 850
rack travel mm : 14.95
Tolerance mm : ± 0.10

Rated speed rpm : 750
rack travel mm : 14.95
Tolerance mm : ± 0.05

Rated speed rpm : 600
rack travel mm : 14.60
Tolerance mm : ± 0.10

Rated speed rpm : 500
rack travel mm : 14.40
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 980
Pressure hPa : 1500
rack travel mm : 15.05
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 980
rack travel mm : 12.30
Tolerance mm : ± 0.10

Rated speed rpm : 980

Pressure hPa : 480
rack travel mm : 14.35
Tolerance mm : ± 0.05

Pressure hPa : 270
rack travel mm : 12.90
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 238.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0

Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 157.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 14.00
Rated speed rpm : 1037
Tolerance 1/min : ± 8

LOW IDLE

Rated speed rpm : 275
rack travel mm : 6.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.04.96
Test oil : ISO 4113

Combination No. : 0 402 646 741

Injection pump
Pump designation : PE6P120A32OLS7872
EP type number : 0 412 626 912

Governor
Governor design. : RQ750PA1231
Governor no. : 0 421 801 791

Cust. part No. : 04222728KY0165-17

Customer-spec. information
Customer : KHD
Motor : BF6M1015/C
Power KW : 239.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 100
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

H08

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 6- 3- 5- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.30
Tolerance mm : ± 0.05

<hr/>	
Del. quantity	
cm ³ /1000 strokes :	365.0
<hr/>	
Tolerance	
cm ³ /1000 strokes :	+ 1.0
<hr/>	
Check tolerance	
cm ³ /1000S. :	+ 4.0
<hr/>	
Spreed	
Tolerance	
cm ³ /1000 strokes :	5.0
<hr/>	
Check tolerance	
cm ³ /1000S. :	9.0
<hr/>	
Rated speed rpm :	300
<hr/>	
Rack travel in mm :	4.90
Tolerance mm :	+ 0.20
Del. quantity	
cm ³ /1000 strokes :	20.0
Tolerance	
cm ³ /1000 strokes :	+ 3.0
Check tolerance	
cm ³ /1000S. :	+ 6.0
Spreed	
Tolerance	
cm ³ /1000 strokes :	8.0
Check tolerance	
cm ³ /1000S. :	12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	715
guide sleeve	
travel mm :	4.23
Tolerance mm :	+ 0.15
<hr/>	
Rated speed rpm :	610
guide sleeve	
travel mm :	0.72
Tolerance mm :	+ 0.25
<hr/>	
Rated speed rpm :	900
guide sleeve	
travel mm :	14.89
Tolerance mm :	+ 0.25
<hr/>	
Rated speed rpm :	862
guide sleeve	
travel mm :	12.00
Tolerance mm :	+ 0.25

Rated speed rpm :	930
guide sleeve	
travel mm :	13.50
Tolerance mm :	+ 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	700
Aneroid pressure	
hPa :	-
Del. quantity	
cm ³ /1000 strokes :	365.0
Tolerance	
cm ³ /1000 strokes :	+ 1.0
Check tolerance	
cm ³ /1000S. :	+ 4.0
Spreed	
Tolerance	
cm ³ /1000 strokes :	5.0
Check tolerance	
cm ³ /1000S. :	9.0

CONTROL LEVER

control lever	
position degree :	109.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	0.50
Tolerance mm :	+ 0.50
Rated speed rpm :	900

ASSEMBLY GOVERNOR SETTING

Rated speed rpm :	750
rack travel mm :	12.30
<hr/>	
Rated speed rpm :	780
Tolerance 1/min :	+ 4
rack travel mm :	5.50
<hr/>	
rack travel mm :	0.50
Tolerance mm :	+ 0.50
Rated speed rpm :	900
<hr/>	
Rated speed rpm :	751
rack travel mm :	12.30
<hr/>	
Rated speed rpm :	781
Tolerance 1/min :	+ 4
rack travel mm :	5.50
<hr/>	
rack travel mm :	0.50
Tolerance mm :	+ 0.50

Rated speed rpm : 752
rack travel mm : 12.30

Rated speed rpm : 782
Tolerance 1/min : + 4
rack travel mm : 5.50

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 900

Rated speed rpm : 753
rack travel mm : 12.30

Rated speed rpm : 783
Tolerance 1/min : + 4
rack travel mm : 5.50

rack travel mm : 0.50
Tolerance mm : + 0.50

Rated speed rpm : 754
rack travel mm : 12.30

Rated speed rpm : 784
Tolerance 1/min : + 4
rack travel mm : 5.50

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 900

Rated speed rpm : 755
rack travel mm : 12.30

Rated speed rpm : 785
Tolerance 1/min : + 4
rack travel mm : 5.50

rack travel mm : 0.50
Tolerance mm : + 0.50

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.30
Tolerance mm : + 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 560

Check speed 1/min : > 80

Check speed 1/min : < 580

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : + 0.75
Del. quantity cm³/1000 strokes : 200.0
Tolerance cm³/1000 strokes : + 20.0
Check tolerance cm³/1000S. : + 24.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 4.90
Tolerance mm : + 0.20
Del. quantity cm³/1000 strokes : 20.0
Tolerance cm³/1000 strokes : + 3.0
Check tolerance cm³/1000S. : + 6.0
Speed Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.04.96
Test oil : ISO 4113
Combination No. : 0 402 648 865
Injection pump
Pump designation : PE8P120A320LS7801-4
EP type number : 0 412 628 839
Governor
Governor design. : RQV350...1050PA866
 : -5
Governor no. : 0 421 813 767

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM442 A
Power KW : 260.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holder assembly : 1 688 901 019

Opening pressure bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.30
Check tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.85
Tolerance mm : ± 0.05

Del. quantity cm³/1000 strokes : 182.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.70
Tolerance mm : +- 0.30

Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0

Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.30
Tolerance mm : +- 0.20

Rated speed rpm : 1170
guide sleeve
travel mm : 9.50
Tolerance mm : +- 0.15

Rated speed rpm : 600
guide sleeve
travel mm : 5.00
Tolerance mm : +- 0.25

Rated speed rpm : 1100
guide sleeve
travel mm : 8.25
Tolerance mm : +- 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1130

Rack travel in mm : 17.25
Tolerance mm : +- 0.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1100
Del. quantity
cm³/1000 strokes : 182.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 119.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.80
Rated speed rpm : 1095
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1175
Tolerance 1/min : +- 15

rack travel mm : 0.75
Tolerance mm : +- 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 68.0
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.70
Tolerance mm : +- 0.10

Rated speed rpm : 250

CRT mm min. : > 7.30

Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.85
Tolerance mm : +- 0.05

Rated speed rpm : 700
rack travel mm : 14.50
Tolerance mm : +- 0.10

Rated speed rpm : 950
rack travel mm : 13.55
Tolerance mm : +- 0.05

Rated speed rpm : 830
rack travel mm : 14.40
Tolerance mm : +- 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 600
Pressure hPa : 420
rack travel mm : 0.80
Tolerance mm : +- 0.05

Pressure hPa : 600
rack travel mm : 2.40
Tolerance mm : +- 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 270

Check speed 1/min : > 80

Check speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure : 1100 hPa
Rated speed rpm : 700
Del. quantity : 215.0 cm³/1000 strokes

Tolerance : +- 2.0 cm³/1000 strokes
Check tolerance : +- 5.0 cm³/1000S.

Spreed Tolerance : 8.0 cm³/1000 strokes
Check tolerance : 12.0 cm³/1000S.

Aneroid pressure : 1100 hPa
Rated speed rpm : 1050
Del. quantity : 153.0 cm³/1000 strokes

Tolerance : +- 1.0 cm³/1000 strokes
Check tolerance : +- 4.0 cm³/1000S.

Spreed Tolerance : 8.0 cm³/1000 strokes
Check tolerance : 12.0 cm³/1000S.

Aneroid pressure : - hPa
Rated speed rpm : 500
Del. quantity : 144.0 cm³/1000 strokes

Tolerance : +- 1.0 cm³/1000 strokes
Check tolerance : +- 4.0 cm³/1000S.

Spreed Tolerance : 8.0 cm³/1000 strokes
Check tolerance : 12.0 cm³/1000S.

BREAKAWAY

Rack travel in mm : 11.80
Rated speed rpm : 1095
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity : 190.0 cm³/1000 strokes

Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 5.70
Tolerance mm : ± 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.04.96
Test oil : ISO 4113
Combination No. : 0 402 648 889
Injection pump
Pump designation : PE8P120A320LS7816
: -10
EP type number : 0 412 628 836
Governor
Governor design. : RQ300/950PA932-7
Governor no. : 0 421 801 743

Cust. part No. : 0190745502

Customer-spec. information
Customer : MB-NFZ
Motor : OM442 LA
Power KW : 362.0

TEST BENCH REQUIREMENTS

Inlet line : 1.3
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Tolerance bar : ± 0.1
Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0
Test nozzle holde
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

H15

Test lines : 1 680 750 075
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 20.50
Tolerance mm : ± 0.50
Firing order : 8-7-2-6-3
: -5-4-1
Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery mark
Barrel no. : 8

BASIC SETTING

Rated speed rpm : 600
Rack travel in mm : 14.70
Rack travel in mm : 14.70
Tolerance mm : ± 0.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 256.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spreed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.20
Tolerance mm : +- 0.30

Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0

Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : +- 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 256.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0

Spreed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 101.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 14.40
Rated speed rpm : 998
Tolerance 1/min : +- 8

rack travel mm : 4.00
Rated speed rpm : 1085
Tolerance 1/min : +- 15

rack travel mm : 0.75
Tolerance mm : +- 0.75
Rated speed rpm : 1150

LOW IDLE

control lever
position degree : 74.0
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.20
Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 405
Tolerance 1/min : +- 20

Rated speed rpm : 200

CRT mm min. : > 7.80

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 14.70
Tolerance mm : +- 0.05

Rated speed rpm : 950
rack travel mm : 15.40
Tolerance mm : +- 0.10

Rated speed rpm : 800

rack travel mm : 15.55
Tolerance mm : +- 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

MEASUREMENT

Pressure hPa : 350
rack travel mm : -2.90
Tolerance mm : +- 0.05

Pressure hPa : 700
rack travel mm : -0.80
Tolerance mm : +- 0.10

Pressure hPa : 1200
rack travel mm : 0.30
Tolerance mm : +- 0.05

Pressure hPa : 1300
rack travel mm : 0.70
Tolerance mm : +- 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 267.5
Tolerance
cm³/1000 strokes : +- 1.5
Check tolerance
cm³/1000S. : +- 4.5
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1600
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 269.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 142.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 14.40
Rated speed rpm : 998
Tolerance 1/min : +- 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 250.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 14.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.20
Tolerance mm : +- 0.30
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.04.96
Test oil : ISO 4113

Combination No. : 0 402 648 904

Injection pump
Pump designation : PE8P120A320LS7801-1
EP type number : 0 412 628 818

Governor
Governor design. : RQV350...1050PA866
: -9
Governor no. : 0 421 813 906

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM442 LA
Power KW : 260.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 500

Rack travel in mm : 13.90

Rack travel in mm : 13.90
Tolerance mm : ± 0.10
Tolerance mm : ± 0.10

Del. quantity cm ³ /1000 strokes	:	202.0
<hr/>		
Tolerance cm ³ /1000 strokes	:	+ 1.0
<hr/>		
Check tolerance cm ³ /1000S.	:	+ 4.0
<hr/>		
Spread Tolerance cm ³ /1000 strokes	:	5.0
<hr/>		
Check tolerance cm ³ /1000S.	:	9.0
Rated speed rpm	:	350
Rack travel in mm	:	5.80
Tolerance mm	:	+ 0.30
Del. quantity cm ³ /1000 strokes	:	19.0
Tolerance cm ³ /1000 strokes	:	+ 3.0
Check tolerance cm ³ /1000S.	:	+ 6.0
Spread Tolerance cm ³ /1000 strokes	:	6.0
Check tolerance cm ³ /1000S.	:	10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	350
guide sleeve travel mm	:	1.55
Tolerance mm	:	+ 0.25
Rated speed rpm	:	1107
guide sleeve travel mm	:	8.05
Tolerance mm	:	+ 0.25
Rated speed rpm	:	570
guide sleeve travel mm	:	3.55
Tolerance mm	:	+ 0.25
Rated speed rpm	:	900
guide sleeve travel mm	:	5.65
Tolerance mm	:	+ 0.25
Rated speed rpm	:	1204

H2O

guide sleeve travel mm	:	10.05
Tolerance mm	:	+ 0.25

GUIDE SLEEVE POSITION

Rated speed rpm	:	1130
Rack travel in mm	:	17.25
Tolerance mm	:	+ 0.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	500
Aneroid pressure hPa	:	700
Del. quantity cm ³ /1000 strokes	:	202.0
Tolerance cm ³ /1000 strokes	:	+ 1.0
Check tolerance cm ³ /1000S.	:	+ 4.0
Spread Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	99.0
tolerance degree	:	+ 4.0

RATED SPEED

rack travel mm	:	11.90
Rated speed rpm	:	1095
Tolerance 1/min	:	+ 5
rack travel mm	:	4.00
Rated speed rpm	:	1175
Tolerance 1/min	:	+ 15
rack travel mm	:	0.75
Tolerance mm	:	+ 0.75
Rated speed rpm	:	1300

LOW IDLE

control lever position degree	:	49.0
tolerance degree	:	+ 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.80
Tolerance mm : ± 0.10

Rated speed rpm : 100
CRT mm min. : > 7.40

Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 500
rack travel mm : 13.90
Tolerance mm : ± 0.10

Rated speed rpm : 1050
rack travel mm : 12.90
Tolerance mm : ± 0.10

Rated speed rpm : 750
rack travel mm : 14.40
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

MEASUREMENT

Pressure hPa : 400
rack travel mm : -1.50
Tolerance mm : ± 0.05

Pressure hPa : 500
rack travel mm : -0.60
Tolerance mm : ± 0.10

Pressure hPa : 925
rack travel mm : 0.25
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 270

Check speed 1/min : > 80
Check speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 182.5
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.5
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1100
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 215.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 144.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 11.90
Rated speed rpm : 1095
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 14.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 5.80
Tolerance mm : +- 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.08.95
Test oil : ISO 4113
Combination No. : 0 402 648 967B
Injection pump
Pump designation : PE8P120A320LS7871
EP type number : 0 412 628 877
Governor
Governor design. : RQV300...105QPA1078
 : -1K
Governor no. : 0 421 815 361
Cust. part No. : 9278734

Customer-spec. information
Customer : LIEBHERR
Motor : D 9408 TI-E
Power KW : 400.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 8- 7- 2- 6
 : - 3- 5- 4
Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 950
Rack travel in mm : 11.80
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 283.5
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed

Tolerance
 cm³/1000 strokes : 5.0

 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 400
 Rack travel in mm : 4.50
 Tolerance mm : ± 0.10
 Del. quantity
 cm³/1000 strokes : 20.0
 Tolerance
 cm³/1000 strokes : ± 3.0
 Check tolerance
 cm³/1000S. : ± 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.69
 Tolerance mm : ± 0.25
 Rated speed rpm : 1117
 guide sleeve
 travel mm : 10.38
 Tolerance mm : ± 0.25
 Rated speed rpm : 746
 guide sleeve
 travel mm : 6.20
 Tolerance mm : ± 0.25
 Rated speed rpm : 353
 guide sleeve
 travel mm : 2.45
 Tolerance mm : ± 0.25
 Rated speed rpm : 403
 guide sleeve
 travel mm : 3.18
 Tolerance mm : ± 0.25
 Rated speed rpm : 450
 guide sleeve
 travel mm : 3.66
 Tolerance mm : ± 0.25
 Rated speed rpm : 1320

guide sleeve
 travel mm : 13.50
 Tolerance mm : ± 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 283.5
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 115.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.85
 Rated speed rpm : 995
 Tolerance 1/min : ± 5
 rack travel mm : 4.00
 Rated speed rpm : 1105
 Tolerance 1/min : ± 15
 rack travel mm : 0.50
 Tolerance mm : ± 0.50
 Rated speed rpm : 1165

LOW IDLE

control lever
 position degree : 78.0
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 400
 rack travel mm : 4.50
 Tolerance mm : ± 0.10
 Rated speed rpm : 500

TORQUE CONTROL

Rated speed rpm : 950
rack travel mm : 11.80
Tolerance mm : ± 0.05

Rated speed rpm : 800
rack travel mm : 11.65
Tolerance mm : ± 0.10

Rated speed rpm : 600
rack travel mm : 10.25
Tolerance mm : ± 0.10

Rated speed rpm : 500
rack travel mm : 9.75
Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 950
Pressure hPa : 1600
rack travel mm : 11.80
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 950
rack travel mm : 9.35
Tolerance mm : ± 0.10

Rated speed rpm : 950

Pressure hPa : 900
rack travel mm : 10.80
Tolerance mm : ± 0.05

Pressure hPa : 700
rack travel mm : 9.35
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 295.0

H25

Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 270.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 225.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 10.85
Rated speed rpm : 995
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.60
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 4.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.04.96
Test oil : ISO 4113
Combination No. : 0 402 746 649
Injection pump
Pump designation : PES6P120A32ORS7359
EP type number : 0 412 726 925
Governor
Governor design. : RQ275/1050PA1217
Governor no. : 0 421 801 782
Cust. part No. : CCEP5150A 66
: -225/228

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR062045 I-B41
Power KW : 185.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 2 417 413 078
Inlet press. bar : 2.5
Tolerance bar : +- 0.1
Overflow quantity
min. L/h : 220
Tolerance L/h : +- 10.0
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : +- 1.5

H27

Test lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0
Prestroke mm : 4.70
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10
Rack travel in mm : 20.25
Tolerance mm : +- 0.75
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : +- 0.30
Check
tolerance °NW : +- 0.50
Start of delivery mark
°NW after s.o.d. : -0.95
Tolerance : +- 0.50
Check
tolerance °NW : +- 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm	:	12.40
Tolerance mm	:	+ 0.05
<hr/>		
Del. quantity cm ³ /1000 strokes	:	186.0
<hr/>		
Tolerance cm ³ /1000 strokes	:	+ 1.0
<hr/>		
Check tolerance cm ³ /1000S.	:	+ 4.0
<hr/>		
Spreed Tolerance cm ³ /1000 strokes	:	5.0
<hr/>		
Check tolerance cm ³ /1000S.	:	9.0
<hr/>		
Rated speed rpm	:	275
<hr/>		
Rack travel in mm	:	-6.10
Tolerance mm	:	+ 0.20
Del. quantity cm ³ /1000 strokes	:	33.0
Tolerance cm ³ /1000 strokes	:	+ 2.0
Check tolerance cm ³ /1000S.	:	+ 5.0
<hr/>		
Spreed Tolerance cm ³ /1000 strokes	:	8.0
Check tolerance cm ³ /1000S.	:	12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	275
guide sleeve travel mm	:	1.37
Tolerance mm	:	+ 0.10
<hr/>		
Rated speed rpm	:	1137
guide sleeve travel mm	:	6.37
Tolerance mm	:	+ 0.10
<hr/>		
Rated speed rpm	:	1050
guide sleeve travel mm	:	6.00
Tolerance mm	:	+ 0.10
<hr/>		
Rated speed rpm	:	391

guide sleeve travel mm	:	4.37
Tolerance mm	:	+ 0.10
<hr/>		
Rated speed rpm	:	490
guide sleeve travel mm	:	6.00
Tolerance mm	:	+ 0.10
<hr/>		
Rated speed rpm	:	1340
guide sleeve travel mm	:	11.50
Tolerance mm	:	+ 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	:	600
<hr/>		
Rack travel in mm	:	20.00
Tolerance mm	:	+ 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	600
Aneroid pressure hPa	:	1000
Del. quantity cm ³ /1000 strokes	:	186.0
Tolerance cm ³ /1000 strokes	:	+ 1.0
Check tolerance cm ³ /1000S.	:	+ 4.0
<hr/>		
Spreed Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	274.0
tolerance degree	:	+ 4.0

RATED SPEED

rack travel mm	:	-1.00
Rated speed rpm	:	1130
Tolerance 1/min	:	+ 5
<hr/>		
rack travel mm	:	-8.40
Rated speed rpm	:	1245
Tolerance 1/min	:	+ 15
<hr/>		
rack travel mm	:	-11.90
Tolerance mm	:	+ 0.50

Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 252.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -6.10
Tolerance mm : \pm 0.10

rack travel mm : -10.50
Rated speed rpm : 385
Tolerance 1/min : \pm 20

Rated speed rpm : 200

CRT mm min. : $<$ -4.90

TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1050
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -1.50
Tolerance mm : \pm 0.20

Rated speed rpm : 500

Pressure hPa : 320
rack travel mm : -0.45
Tolerance mm : \pm 0.15

Pressure hPa : 160
rack travel mm : -1.20
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 195

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 191.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 142.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1130
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 275
rack travel mm : -6.10
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.04.96
Test oil : ISO 4113
Combination No. : 0 402 746 953
Injection pump
Pump designation : PES6P120A320RS7294
EP type number : 0 412 726 895
Governor
Governor design. : RQV275...1000PA1001
: -1
Governor no. : 0 421 813 936
Cust. part No. : CCEP-5135 66-213

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR 063540 J/3
Power KW : 306.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 2 417 413 079
Inlet press. bar : 2.5
Tolerance bar : +- 0.1
Test nozzle holde
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : +- 1.5
Test lines : 1 680 750 089

J03

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 4.55
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 13.50
Tolerance mm : +- 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : +- 0.30
Check
tolerance °NW : +- 0.50

Start of delivery mark

Tolerance : +- 0.50
Check
tolerance °NW : +- 0.70

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 13.70
Tolerance mm : +- 0.05

<hr/>	
Del. quantity	
cm ³ /1000 strokes	: 309.0
<hr/>	
Tolerance	
cm ³ /1000 strokes	: ± 1.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: ± 4.0
<hr/>	
Spreed	
Tolerance	
cm ³ /1000 strokes	: 5.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: 9.0
<hr/>	
Rated speed rpm	: 300
<hr/>	
Rack travel in mm	: -8.60
Tolerance mm	: ± 0.20
Del. quantity	
cm ³ /1000 strokes	: 30.0
Tolerance	
cm ³ /1000 strokes	: ± 2.0
Check tolerance	
cm ³ /1000S.	: ± 6.0
Spreed	
Tolerance	
cm ³ /1000 strokes	: 8.0
Check tolerance	
cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 275
guide sleeve	
travel mm	: 1.29
Tolerance mm	: ± 0.10
<hr/>	
Rated speed rpm	: 1086
guide sleeve	
travel mm	: 8.46
Tolerance mm	: ± 0.10
<hr/>	
Rated speed rpm	: 773
guide sleeve	
travel mm	: 6.09
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 343
guide sleeve	
travel mm	: 2.33
Tolerance mm	: ± 0.20

Rated speed rpm	: 393
guide sleeve	
travel mm	: 2.99
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 490
guide sleeve	
travel mm	: 3.81
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 1370
guide sleeve	
travel mm	: 11.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1185
<hr/>	
Rack travel in mm	: 12.60
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 600
Aneroid pressure	
hPa	: 1000
Del. quantity	
cm ³ /1000 strokes	: 309.0
Tolerance	
cm ³ /1000 strokes	: ± 1.0
Check tolerance	
cm ³ /1000S.	: ± 4.0
Spreed	
Tolerance	
cm ³ /1000 strokes	: 5.0
Check tolerance	
cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 302.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: -1.00
Rated speed rpm	: 1080
Tolerance 1/min	: ± 5
<hr/>	
rack travel mm	: -9.70
Rated speed rpm	: 1220
Tolerance 1/min	: ± 15
<hr/>	
rack travel mm	: -13.25

Tolerance mm : +- 0.55
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 246.0
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -8.60
Tolerance mm : +- 0.10

Rated speed rpm : 200

CRT mm max. : < -7.20

Rated speed rpm : 370

TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1000
Tolerance mm : +- 0.10

Rated speed rpm : 500
rack travel mm : -5.50
Tolerance mm : +- 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -4.90
Tolerance mm : +- 0.20

Rated speed rpm : 500

Pressure hPa : 240
rack travel mm : -3.70
Tolerance mm : +- 0.20

Pressure hPa : 600

J05

rack travel mm : -0.85
Tolerance mm : +- 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 225

Check
speed 1/min : > 80
Check
speed 1/min : < 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 286.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0

Aneroid pressure
hPa : 1000
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 137.0
Tolerance
cm³/1000 strokes : +- 5.0
Check tolerance
cm³/1000S. : +- 8.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 152.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1080
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000s. : ± 14.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : -8.60
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000s. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.96
Test oil : ISO 4113
Combination No. : 0 402 946 012
Injection pump
Pump designation : PES6P120A32ORS8031
EP type number : 0 412 926 022
Governor
Governor design. : RQV300...1000PA1181K
Governor no. : 0 421 815 975
Cust. part No. : CCEP 5145A 66-234

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR 063540 P 41
Power KW : 300.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 078
Inlet press. bar : 2.5
Test nozzle holde
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 11.00
Tolerance mm : ± 0.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery mark
°NW after s.o.d. : -0.17
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1
Beginning of delivery differende
betw. rack trav.
mm : 21.00
and maximum rack
travel : 19.50
Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm	:	1000
<hr/>		
Rack travel in mm	:	13.30
Tolerance mm	:	+ 0.05
<hr/>		
Del. quantity cm ³ /1000 strokes	:	360.0
<hr/>		
Tolerance cm ³ /1000 strokes	:	+ 1.0
<hr/>		
Check tolerance cm ³ /1000S.	:	+ 4.0
<hr/>		
Spread Tolerance cm ³ /1000 strokes	:	5.0
<hr/>		
Check tolerance cm ³ /1000S.	:	9.0
<hr/>		
Rated speed rpm	:	325
Rack travel in mm	:	-7.80
Tolerance mm	:	+ 0.20
Del. quantity cm ³ /1000 strokes	:	38.0
Tolerance cm ³ /1000 strokes	:	+ 2.0
Check tolerance cm ³ /1000S.	:	+ 6.0
Spread Tolerance cm ³ /1000 strokes	:	8.0
Check tolerance cm ³ /1000S.	:	12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	300
guide sleeve travel mm	:	1.47
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	1082
guide sleeve travel mm	:	9.30
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	797
guide sleeve travel mm	:	6.08
Tolerance mm	:	+ 0.25

J08

Rated speed rpm	:	383
guide sleeve travel mm	:	2.42
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	433
guide sleeve travel mm	:	2.89
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	530
guide sleeve travel mm	:	3.71
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	1350
guide sleeve travel mm	:	13.50
Tolerance mm	:	+ 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	:	1220
Rack travel in mm	:	12.00
Tolerance mm	:	+ 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1000
Aneroid pressure hPa	:	1400
Del. quantity cm ³ /1000 strokes	:	360.0
Tolerance cm ³ /1000 strokes	:	+ 1.0
Check tolerance cm ³ /1000S.	:	+ 4.0
Spread Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	295.0
tolerance degree	:	+ 4.0

RATED SPEED

rack travel mm	:	-1.00
Rated speed rpm	:	1105
Tolerance 1/min	:	+ 5

rack travel mm : -9.30
Rated speed rpm : 1210
Tolerance 1/min : + 15

rack travel mm : -12.80
Tolerance mm : + 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 253.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 325
rack travel mm : -7.80
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm max. : < -6.00

Rated speed rpm : 360

TORQUE CONTROL

Rated speed rpm : 1000

Rated speed rpm : 600
rack travel mm : -0.55
Tolerance mm : + 0.10

Rated speed rpm : 800
rack travel mm : -0.35
Tolerance mm : + 0.20

Rated speed rpm : 350
rack travel mm : -1.80
Tolerance mm : + 0.25

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
Pressure hPa : 1400
Tolerance mm : + 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1000
rack travel mm : -5.50
Tolerance mm : + 0.20

Rated speed rpm : 1000

Pressure hPa : 280
rack travel mm : -4.50
Tolerance mm : + 0.20

Pressure hPa : 560
rack travel mm : -3.00
Tolerance mm : + 0.05

START CUT-OUT

Rated speed rpm : > 175
Rated speed rpm : < 240

Check
speed 1/min : > 155
Check
speed 1/min : < 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1400
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 390.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 201.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1105
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : +- 0.75
Del. quantity
cm³/1000 strokes : 190.0
Tolerance
cm³/1000 strokes : +- 15.0
Check tolerance
cm³/1000S. : +- 19.0

LOW IDLE

Rated speed rpm : 325
rack travel mm : -7.80
Tolerance mm : +- 0.20
Del. quantity
cm³/1000 strokes : 38.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.04.96
Test oil : ISO 4113
Combination No. : 0 403 246 044
Injection pump
Pump designation : PES6MW100/720RS1522
EP type number : 0 413 206 023
Governor
Governor design. : RQV300...1300MW148
: -1
Governor no. : 0 420 083 322
Cust. part No. : 0250744602

Customer-spec. information
Customer : MB-NFZ
Motor : OM366LA
Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : +- 1.5
Test Lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : +- 1.0
Prestroke mm : 4.55
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10
Rack travel in mm : 20.00
Tolerance mm : +- 1.00
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : +- 0.50
Check
tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1300
Rack travel in mm : 14.45
Tolerance mm : +- 0.05
Del. quantity
cm3/1000 strokes : 133.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 4.0
Speed
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
 cm³/1000S. : 8.0
 Rated speed rpm : 300
 Rack travel in mm : 4.50
 Tolerance mm : ± 0.20
 Del. quantity
 cm³/1000 strokes : 12.0
 Tolerance
 cm³/1000 strokes : ± 2.0
 Check tolerance
 cm³/1000S. : ± 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000S. : 4.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 0.92
 Tolerance mm : ± 0.25
 Rated speed rpm : 1355
 guide sleeve
 travel mm : 9.33
 Tolerance mm : ± 0.25
 Rated speed rpm : 1078
 guide sleeve
 travel mm : 7.06
 Tolerance mm : ± 0.25
 Rated speed rpm : 514
 guide sleeve
 travel mm : 2.14
 Tolerance mm : ± 0.25
 Rated speed rpm : 564
 guide sleeve
 travel mm : 2.47
 Tolerance mm : ± 0.25
 Rated speed rpm : 750
 guide sleeve
 travel mm : 4.02
 Tolerance mm : ± 0.25
 Rated speed rpm : 1720
 guide sleeve
 travel mm : 13.50

Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1500
 Rack travel in mm : 10.00
 Tolerance mm : ± 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 133.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 8.0

CONTROL LEVER

control lever
 position degree : 120.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.45
 Rated speed rpm : 1345
 Tolerance 1/min : ± 5
 rack travel mm : 4.00
 Rated speed rpm : 1500
 Tolerance 1/min : ± 15
 rack travel mm : 0.50
 Tolerance mm : ± 0.50
 Rated speed rpm : 1600

LOW IDLE

control lever
 position degree : 75.0
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 4.50
Tolerance mm : ± 0.10

Rated speed rpm : 200
CRT mm min. : > 5.50

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 14.45
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 14.45
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 14.45
Tolerance mm : ± 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
Tolerance mm : ± 0.05

Rated speed rpm : 500

Pressure hPa : 750
rack travel mm : 4.80
Tolerance mm : ± 0.10

Pressure hPa : 300
rack travel mm : 1.50
Tolerance mm : ± 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 200

Check speed 1/min : > 80
Check speed 1/min : < 220

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 128.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 46.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

BREAKAWAY

Rack travel in mm : 13.45
Rated speed rpm : 1345
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000S. : ± 8.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 4.50
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 12.0

Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 18.04.96
Test oil : ISO 4113
Combination No. : 0 403 436 114A
Injection pump Pump designation : PES6MW100/320/3RS119 : 4-1
EP type number : 0 413 406 221
Governor Governor design. : RQV300...1300MW108K
Governor no. : 0 420 083 998

Cust. part No. :

Customer-spec. information
Customer : PERKINS
Motor : 180 TI

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde assembly : 1 688 901 101
Opening pressure bar : 208.5
Tolerance bar : +- 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : +- 1.0
Prestroke mm : 3.35
Tolerance mm : +- 0.05
Check tolerance mm : +- 0.10
Rack travel in mm : 13.00
Tolerance mm : +- 1.00
Firing order : 1- 5- 3- 6- 2- : 4

Phasing : 0-60-120-180-240 : -300
Tolerance : +- 0.50
Check tolerance °NW : +- 0.75

Start of delivery blocking

°NW before FB : 46.50
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1300
Rack travel in mm : 13.50
Tolerance mm : +- 0.05
Del. quantity cm3/1000 strokes : 131.5
Tolerance cm3/1000 strokes : +- 1.0

<hr/>	
Check tolerance	
cm ³ /1000S.	: + 4.0
<hr/>	
Spread	
Tolerance	
cm ³ /1000 strokes	: 4.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: 7.5
<hr/>	
Rated speed rpm	: 300
<hr/>	
Rack travel in mm	: 6.80
Tolerance mm	: + 0.20
Del. quantity	
cm ³ /1000 strokes	: 22.0
Tolerance	
cm ³ /1000 strokes	: + 2.0
Check tolerance	
cm ³ /1000S.	: + 4.5
Spread	
Tolerance	
cm ³ /1000 strokes	: 3.5
Check tolerance	
cm ³ /1000S.	: 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.78
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 1354
guide sleeve	
travel mm	: 10.13
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 891
guide sleeve	
travel mm	: 6.43
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 307
guide sleeve	
travel mm	: 1.83
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 357
guide sleeve	
travel mm	: 2.46
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 470

guide sleeve	
travel mm	: 3.34
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 1640
guide sleeve	
travel mm	: 13.50
Tolerance mm	: + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1400
<hr/>	
Rack travel in mm	: 10.00
Tolerance mm	: + 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1300
Aneroid pressure	
hPa	: 900
Del. quantity	
cm ³ /1000 strokes	: 131.5
Tolerance	
cm ³ /1000 strokes	: + 1.0
Check tolerance	
cm ³ /1000S.	: + 4.0
Spread	
Tolerance	
cm ³ /1000 strokes	: 4.0
Check tolerance	
cm ³ /1000S.	: 7.5

CONTROL LEVER

control lever	
position degree	: 120.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 12.50
Rated speed rpm	: 1345
Tolerance 1/min	: + 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1475
Tolerance 1/min	: + 15
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1650

LOW IDLE

control lever
position degree : 77.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.80
Tolerance mm : ± 0.10

Rated speed rpm : 200

CRT mm min. : > 8.50

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 13.50
Tolerance mm : ± 0.05

Rated speed rpm : 800
rack travel mm : 12.75
Tolerance mm : ± 0.10

Rated speed rpm : 500
rack travel mm : 11.50
Tolerance mm : ± 0.10

Rated speed rpm : 1000
rack travel mm : 13.10
Tolerance mm : ± 0.15

Rated speed rpm : 700
rack travel mm : 12.50
Tolerance mm : ± 0.15

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1300
Pressure hPa : 900
rack travel mm : 13.50
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1300
rack travel mm : 8.80
Tolerance mm : ± 0.10

Rated speed rpm : 1300

Pressure hPa : 300
rack travel mm : 12.10
Tolerance mm : ± 0.15

Pressure hPa : 180
rack travel mm : 9.60
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 190
Rated speed rpm : < 240

Check
speed 1/min : > 170
Check
speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 126.0

Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0

Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : 900
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 109.0
Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

BREAKAWAY

Rack travel in mm : 12.50
Rated speed rpm : 1345
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : +- 1.00
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 strokes : +- 7.0
Check tolerance
cm³/1000S. : +- 10.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.80
Tolerance mm : +- 0.20
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.04.96
Test oil : ISO 4113
Combination No. : 0 403 446 249
Injection pump
Pump designation : PES6MW100/72ORS1197
EP type number : 0 413 406 185
Governor
Governor design. : RQV325...1350MW109K
Governor no. : 0 420 083 997

Cust. part No. :

Customer-spec. information
Customer : IVECO-FIAT
Motor : 8060.45.6000
Power KW : 169.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 457 413 010
Inlet press. bar : 1.5
Test nozzle holder assembly : 1 688 901 101
Opening pressure bar : 208.5
Tolerance bar : +- 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : +- 1.0
Prestroke mm : 4.05
Tolerance mm : +- 0.05
Check tolerance mm : +- 0.10
Rack travel in mm : 10.50
Tolerance mm : +- 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : +- 0.50
Check tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1350
Rack travel in mm : 14.05
Tolerance mm : +- 0.05
Del. quantity cm3/1000 strokes : 102.0
Tolerance cm3/1000 strokes : +- 1.0
Check tolerance cm3/1000S. : +- 3.0
Speed
Tolerance cm3/1000 strokes : 3.5

Check tolerance
 cm³/1000S. : 6.0
 Rated speed rpm : 330
 Rack travel in mm : 8.20
 Tolerance mm : +- 0.20
 Del. quantity
 cm³/1000 strokes : 27.0
 Tolerance
 cm³/1000 strokes : +- 2.0
 Check tolerance
 cm³/1000S. : +- 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325
 guide sleeve
 travel mm : 1.90
 Tolerance mm : +- 0.25
 Rated speed rpm : 1411
 guide sleeve
 travel mm : 10.31
 Tolerance mm : +- 0.25
 Rated speed rpm : 832
 guide sleeve
 travel mm : 5.05
 Tolerance mm : +- 0.25
 Rated speed rpm : 346
 guide sleeve
 travel mm : 2.27
 Tolerance mm : +- 0.25
 Rated speed rpm : 396
 guide sleeve
 travel mm : 3.13
 Tolerance mm : +- 0.25
 Rated speed rpm : 380
 guide sleeve
 travel mm : 3.01
 Tolerance mm : +- 0.25
 Rated speed rpm : 1640
 guide sleeve
 travel mm : 13.50

J20

Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1475
 Rack travel in mm : 13.00
 Tolerance mm : +- 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1350
 Aneroid pressure
 hPa : 850
 Del. quantity
 cm³/1000 strokes : 102.0
 Tolerance
 cm³/1000 strokes : +- 1.0
 Check tolerance
 cm³/1000S. : +- 3.0
 Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 6.0

CONTROL LEVER

control lever
 position degree : 120.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 13.00
 Rated speed rpm : 1440
 Tolerance 1/min : +- 5
 rack travel mm : 4.00
 Rated speed rpm : 1550
 Tolerance 1/min : +- 15
 rack travel mm : 0.50
 Tolerance mm : +- 0.50
 Rated speed rpm : 1650

LOW IDLE

control lever
 position degree : 82.0
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 330
rack travel mm : 8.20
Tolerance mm : +- 0.10

Rated speed rpm : 200
CRT mm min. : > 10.00

TORQUE CONTROL

Rated speed rpm : 1350
rack travel mm : 14.05
Tolerance mm : +- 0.05

Rated speed rpm : 1200
rack travel mm : 13.70
Tolerance mm : +- 0.10

Rated speed rpm : 1000
rack travel mm : 13.35
Tolerance mm : +- 0.15

Rated speed rpm : 700
rack travel mm : 13.40
Tolerance mm : +- 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 850
rack travel mm : 13.50
Tolerance mm : +- 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 11.40
Tolerance mm : +- 0.05

Rated speed rpm : 500
Pressure hPa : 550
rack travel mm : 13.45
Tolerance mm : +- 0.15

Pressure hPa : 350
rack travel mm : 12.35
Tolerance mm : +- 0.05

START CUT-OUT

J21

Rated speed rpm : > 265
Check speed 1/min : > 275

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 850
Rated speed rpm : 1200
Del. quantity cm³/1000 strokes : 102.0
Tolerance cm³/1000 strokes : +- 1.5
Check tolerance cm³/1000S. : +- 4.0
Spreed Tolerance cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 7.0

Aneroid pressure hPa : 850
Rated speed rpm : 1000
Del. quantity cm³/1000 strokes : 102.0
Tolerance cm³/1000 strokes : +- 1.5
Check tolerance cm³/1000S. : +- 4.0

Aneroid pressure hPa : 850
Rated speed rpm : 700
Del. quantity cm³/1000 strokes : 106.0
Tolerance cm³/1000 strokes : +- 1.5
Check tolerance cm³/1000S. : +- 4.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 76.5
Tolerance cm³/1000 strokes : +- 1.0
Check tolerance cm³/1000S. : +- 3.0

BREAKAWAY

Rack travel in mm : 13.00
Rated speed rpm : 1440
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100

WARM-START DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 13.0

COLD-START DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : +- 8.0
Check tolerance
cm³/1000S. : +- 10.0

LOW IDLE

Rated speed rpm : 330
rack travel mm : 8.20
Tolerance mm : +- 0.20
Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 22.04.96
Test oil : ISO 4113
Combination No. : 0 403 476 054
Injection pump
Pump designation : PES6MW100/72ORS1144
EP type number : 0 413 406 138
Governor
Governor design. : RSV350...1200MWOA316
Governor no. : 0 420 085 092
Cust. part No. : 0150747302

Customer-spec. information
Customer : MB-NFZ
Motor : OM366A
Power KW : 115.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Test nozzle holder assembly : 1 688 901 101
Opening pressure bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0
Prestroke mm : 3.75
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2- 4
Phasing : 0-60-120-180-240
Tolerance : -300
Check tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1200
Rack travel in mm : 12.05
Tolerance mm : ± 0.05
Del. quantity cm3/1000 strokes : 81.5
Tolerance cm3/1000 strokes : ± 1.0
Check tolerance cm3/1000S. : ± 3.0
Speed Tolerance cm3/1000 strokes : 3.5

Check tolerance
 cm³/1000S. : 6.0
 Rated speed rpm : 350
 Rack travel in mm : 8.60
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 10.0
 Tolerance
 cm³/1000 strokes : + 2.0
 Check tolerance
 cm³/1000S. : + 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
 Rack travel in mm : 0.65
 Tolerance mm : + 0.35
 governor spring
 pre-tension
 click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 81.5
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 3.0
 Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 6.0

CONTROL LEVER

control lever
 position degree : 103.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 1.00
 Tolerance mm : + 0.70
 Rated speed rpm : 1450

rack travel mm : 4.00
 Rated speed rpm : 1340

rack travel mm : 11.00
 Rated speed rpm : 1248
 Tolerance 1/min : + 8

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1240
 rack travel mm : 11.00

Rated speed rpm : 1289
 Tolerance 1/min : + 4
 rack travel mm : 4.00

Rated speed rpm : 1241
 rack travel mm : 11.00

Rated speed rpm : 1290
 Tolerance 1/min : + 4
 rack travel mm : 4.00

Rated speed rpm : 1242
 rack travel mm : 11.00

Rated speed rpm : 1291
 Tolerance 1/min : + 4
 rack travel mm : 4.00

Rated speed rpm : 1243
 rack travel mm : 11.00

Rated speed rpm : 1292
 Tolerance 1/min : + 4
 rack travel mm : 4.00

Rated speed rpm : 1244
 rack travel mm : 11.00

Rated speed rpm : 1293
 Tolerance 1/min : + 4
 rack travel mm : 4.00

Rated speed rpm : 1245
 rack travel mm : 11.00

Rated speed rpm : 1294
 Tolerance 1/min : + 4

rack travel mm : 4.00

LOW IDLE

Testing:

Rated speed rpm : 350
rack travel mm : 8.60
Tolerance mm : + 0.30

rack travel mm : 2.00
Rated speed rpm : 485
Tolerance 1/min : + 30

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 12.05
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 12.55
Tolerance mm : + 0.10

Rated speed rpm : 1000
rack travel mm : 12.20
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 76.5
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : + 1.00
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : + 5.0
Check tolerance
cm³/1000S. : + 8.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 8.60
Tolerance mm : + 0.30
Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.04.96
Test oil : ISO 4113
Combination No. : 9 400 083 452
Injection pump
Pump designation : PES6A100D320/3RS2691
: -2
EP type number : 9 410 230 028
Governor
Governor design. : RQV350...125QAB1225R
Governor no. : 9 420 080 224
Cust. part No. :

Customer-spec. information

Customer : CUMMINS
Motor : 6 C 8.3L
Power KW : 123.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 000
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

Beginning of delivery differende

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 3.50

BASIC SETTING

Rated speed rpm : 1250
Rack travel in mm : 11.25
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 104.5
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

<hr/>	
Spreed	
Tolerance	
cm3/1000 strokes :	3.5
<hr/>	
Check tolerance	
cm3/1000S. :	8.0
<hr/>	
Del. quantity	
cm3/1000 strokes :	16.0
Tolerance	
cm3/1000 strokes :	+ 2.0
Check tolerance	
cm3/1000S. :	+ 4.5
Spreed	
Tolerance	
cm3/1000 strokes :	5.5
Check tolerance	
cm3/1000S. :	9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	1265
guide sleeve	
travel mm :	8.50
Tolerance mm :	+ 0.10
<hr/>	
Rated speed rpm :	350
guide sleeve	
travel mm :	2.05
Tolerance mm :	+ 0.25
<hr/>	
Rated speed rpm :	900
guide sleeve	
travel mm :	5.75
Tolerance mm :	+ 0.25
<hr/>	
Rated speed rpm :	500
guide sleeve	
travel mm :	3.95
Tolerance mm :	+ 0.25

GUIDE SLEEVE POSITION

Rated speed rpm :	1250
Rack travel in mm :	16.50
Tolerance mm :	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1250
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Aneroid pressure	
hPa :	-
Del. quantity	
cm3/1000 strokes :	104.5
Tolerance	
cm3/1000 strokes :	+ 1.0
Check tolerance	
cm3/1000S. :	+ 3.0
Spreed	
Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S. :	8.0

CONTROL LEVER

control lever	
position degree :	117.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	10.20
Rated speed rpm :	1295
Tolerance 1/min :	+ 5
<hr/>	
rack travel mm :	4.00
Rated speed rpm :	1405
Tolerance 1/min :	+ 15
<hr/>	
rack travel mm :	0.50
Tolerance mm :	+ 0.50
Rated speed rpm :	1500

LOW IDLE

control lever	
position degree :	70.0
tolerance degree :	+ 4.0

Testing:

Rated speed rpm :	350
rack travel mm :	5.40
Tolerance mm :	+ 0.10
<hr/>	
Rated speed rpm :	100
CRT mm min. :	> 9.80
<hr/>	
Rated speed rpm :	425

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 11.25
Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 11.85
Tolerance mm : ± 0.05

Rated speed rpm : 600
rack travel mm : 11.60
Tolerance mm : ± 0.10

Rated speed rpm : 750
rack travel mm : 11.45
Tolerance mm : ± 0.15

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 270

Check speed 1/min : > 80
Check speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 102.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 10.20
Rated speed rpm : 1295
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : ± 1.00
Del. quantity
cm³/1000 strokes : 171.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 20.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.04.96
Test oil : ISO 4113

Combination No. : 9 400 083 463

Injection pump
Pump designation : PES6A95D120RS2834
EP type number : 9 400 084 032

Governor
Governor design. : RSV400...1100A8C2259
: -1R
Governor no. : 9 420 083 261

Cust. part No. : 3355079

Customer-spec. information
Customer : CUMMINS
Motor : 6BT 5.9 L
Power KW : 108.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

K01

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 2.80
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 10.50
Tolerance mm : +- 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Beginning of delivery differende

and maximum rack
travel : 10.50
Tolerance mm : +- 1.50
Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.95
Tolerance mm : +- 0.05

Del. quantity
cm³/1000 strokes : 85.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 3.0

<hr/>	
Spreed	
Tolerance	
cm ³ /1000 strokes :	3.5
<hr/>	
Check tolerance	
cm ³ /1000S.	: 8.0
<hr/>	
Del. quantity	
cm ³ /1000 strokes :	11.0
Tolerance	
cm ³ /1000 strokes :	+ 2.0
Check tolerance	
cm ³ /1000S.	: + 4.5
Spreed	
Tolerance	
cm ³ /1000 strokes :	5.5
Check tolerance	
cm ³ /1000S.	: 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm :	800
<hr/>	
Rack travel in mm :	0.65
Tolerance mm :	+ 0.35
<hr/>	
governor spring	
pre-tension	
click setting x :	4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1100
Aneroid pressure	
hPa :	-
Del. quantity	
cm ³ /1000 strokes :	85.0
Tolerance	
cm ³ /1000 strokes :	+ 1.0
Check tolerance	
cm ³ /1000S.	: + 3.0
Spreed	
Tolerance	
cm ³ /1000 strokes :	3.5
Check tolerance	
cm ³ /1000S.	: 8.0

CONTROL LEVER

control lever	
position degree :	101.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	9.90
Rated speed rpm :	1145
Tolerance 1/min :	+ 5
<hr/>	
rack travel mm :	4.00
Rated speed rpm :	1190
Tolerance 1/min :	+ 15
<hr/>	
rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1350

LOW IDLE

control lever	
position degree :	71.0
tolerance degree :	+ 4.0

Setting point w/out bumper spring

Rated speed rpm :	400
rack travel mm :	4.60

Testing:

Rated speed rpm :	400
rack travel mm :	5.10
Tolerance mm :	+ 0.10

rack travel mm :	2.00
Rated speed rpm :	520
Tolerance 1/min :	+ 30

Rated speed rpm :	100
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CRT mm min. :	> 19.00
---------------	---------

TORQUE CONTROL

Rated speed rpm :	1100
rack travel mm :	10.95
Tolerance mm :	+ 0.05

Rated speed rpm :	700
rack travel mm :	11.55
Tolerance mm :	+ 0.05

Rated speed rpm :	900
rack travel mm :	11.25

Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 93.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 86.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 9.90
Rated speed rpm : 1145
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : ± 1.00
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 13.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : ± 2.0

K03

Check tolerance
cm³/1000S. : ± 4.5
Spread
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 22.04.96
Test oil : ISO 4113
Combination No. : 9 400 085 223
Injection pump
Pump designation : PES3A80D32ORS1281
EP type number : 9 400 083 054
Governor
Governor design. : RSV350...1400A2C2129
Governor no. : 9 420 083 265
Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : D 229-3

TEST BENCH REQUIREMENTS

Inlet Line : 3.1
Test oil inlet temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde assembly : 0 681 343 009
Opening pressure bar : 173.5
Tolerance bar : +- 1.5
Test lines : 1 680 750 003
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 2.25
Tolerance mm : +- 0.05
Check tolerance mm : +- 0.10

Rack travel in mm : 10.50
Tolerance mm : +- 1.50

Firing order : 1- 2- 3

Phasing : 0-120-240

Beginning of delivery differende

and maximum rack travel : 10.50
Tolerance mm : +- 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 9.95
Tolerance mm : +- 0.05

Del. quantity cm3/1000 strokes : 55.0

Tolerance cm3/1000 strokes : +- 0.5

Check tolerance cm3/1000S. : +- 2.0

Speed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

Del. quantity
cm³/1000 strokes : 8.0

Tolerance
cm³/1000 strokes : +- 1.5

Check tolerance
cm³/1000S. : +- 3.5

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : +- 0.35

governor spring
pre-tension
click setting x : 5.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 55.0

Tolerance
cm³/1000 strokes : +- 0.5

Check tolerance
cm³/1000S. : +- 2.0

Spread
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 112.0
tolerance degree : +- 4.0

K05

RATED SPEED

rack travel mm : 8.90
Rated speed rpm : 1445
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1510
Tolerance 1/min : +- 15

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1700

LOW IDLE

control lever
position degree : 78.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 6.50

Testing:

Rated speed rpm : 350
rack travel mm : 7.00
Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 670
Tolerance 1/min : +- 30

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 9.95
Tolerance mm : +- 0.05

Rated speed rpm : 500
rack travel mm : 10.75
Tolerance mm : +- 0.05

Rated speed rpm : 700
rack travel mm : 10.70
Tolerance mm : +- 0.10

Rated speed rpm : 1100
rack travel mm : 10.35

Tolerance mm : \pm 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 49.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0

Aneroid pressure
hPa : -
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 56.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0

BREAKAWAY

Rack travel in mm : 8.90
Rated speed rpm : 1445
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

K06

Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.04.96
Test oil : ISO 4113
Combination No. : 9 400 085 240
Injection pump
Pump designation : PES4A90d320RS2702
EP type number : 9 400 083 095
Governor
Governor design. : RSV350...1150A2C2129
: -4R
Governor no. : 9 420 083 268
Cust. part No. :

Customer-spec. information

Customer : MWM
Motor : D 229-4
Power KW : 75.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : + 1.5
Test lines : 1 680 750 003
Outside diameter : 6.0

K07

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 2.70
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 3- 4- 2
Phasing : 0-90-180-270

Beginning of delivery differende

and maximum rack
travel : 10.50
Tolerance mm : + 1.50
Difference ° CS : 3.50

BASIC SETTING

Rated speed rpm : 1150
Rack travel in mm : 9.05
Tolerance mm : + 0.05
Del. quantity
cm³/1000 strokes : 64.0
Tolerance
cm³/1000 strokes : + 0.5
Check tolerance
cm³/1000S. : + 2.5
Speed

Tolerance
 cm³/1000 strokes : 3.0

Check tolerance
 cm³/1000S. : 7.0

Del. quantity
 cm³/1000 strokes : 12.0

Tolerance
 cm³/1000 strokes : +- 2.0

Check tolerance
 cm³/1000S. : +- 4.0

Spreed
 Tolerance
 cm³/1000 strokes : 4.5

Check tolerance
 cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65
 Tolerance mm : +- 0.35

governor spring
 pre-tension
 click setting x : 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure
 hPa : -

Del. quantity
 cm³/1000 strokes : 64.0

Tolerance
 cm³/1000 strokes : +- 0.5

Check tolerance
 cm³/1000S. : +- 2.5

Spreed
 Tolerance
 cm³/1000 strokes : 3.0

Check tolerance
 cm³/1000S. : 7.0

CONTROL LEVER

control lever
 position degree : 49.0
 tolerance degree : +- 4.0

K08

control lever
 position degree : 99.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 8.00
 Rated speed rpm : 1195
 Tolerance 1/min : +- 5

rack travel mm : 4.00
 Rated speed rpm : 1245
 Tolerance 1/min : +- 15

rack travel mm : 0.85
 Tolerance mm : +- 0.55
 Rated speed rpm : 1400

LOW IDLE

control lever
 position degree : 74.0
 tolerance degree : +- 4.0

control lever
 position degree : 24.0
 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
 rack travel mm : 5.20

Testing:

Rated speed rpm : 350
 rack travel mm : 5.70
 Tolerance mm : +- 0.10

rack travel mm : 2.00
 Rated speed rpm : 590
 Tolerance 1/min : +- 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1150
 rack travel mm : 9.05
 Tolerance mm : +- 0.05

Rated speed rpm : 500
 rack travel mm : 10.15

Tolerance mm : +- 0.05
Rated speed rpm : 800
rack travel mm : 9.80
Tolerance mm : +- 0.10

Rated speed rpm : 1000
rack travel mm : 9.25
Tolerance mm : +- 0.15

Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.0
Spreed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 62.0
Tolerance
cm³/1000 strokes : +- 1.5
Check tolerance
cm³/1000S. : +- 3.5

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 67.0
Tolerance
cm³/1000 strokes : +- 1.5
Check tolerance
cm³/1000S. : +- 3.5

BREAKAWAY

Rack travel in mm : 8.00
Rated speed rpm : 1195
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : +- 1.00

LOW IDLE

Del. quantity
cm³/1000 strokes : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.04.96
Test oil : ISO 4113
Combination No. : 9 400 085 241
Injection pump
Pump designation : PES3A90D32ORS2703
EP type number : 9 400 083 096
Governor
Governor design. : RSV350...1150A2C2129
 : -4R
Governor no. : 9 420 083 268
Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : D 229-3
Power KW : 42.7

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : +- 1.5
Test Lines : 1 680 750 003
Outside diameter : 6.0

K10

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 2.70
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 10.50
Tolerance mm : +- 1.50

Firing order : 1- 2- 3

Phasing : 0-120-240

Beginning of delivery differende

and maximum rack
travel : 10.50
Tolerance mm : +- 1.50
Difference ° CS : 3.50

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 8.55
Tolerance mm : +- 0.05

Del. quantity
cm³/1000 strokes : 58.5

Tolerance
cm³/1000 strokes : +- 0.5

Check tolerance
cm³/1000S. : +- 2.5

Speed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 5.0

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : +- 2.0

Check tolerance
cm³/1000S. : +- 4.0

Spreed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : +- 0.35

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 58.5

Tolerance
cm³/1000 strokes : +- 0.5

Check tolerance
cm³/1000S. : +- 2.5

Spreed
Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 5.0

CONTROL LEVER

control lever
position degree : 97.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 7.50
Rated speed rpm : 1195
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1235
Tolerance 1/min : +- 15

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 72.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 5.10

Testing:

Rated speed rpm : 350
rack travel mm : 5.60
Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 580
Tolerance 1/min : +- 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 8.55
Tolerance mm : +- 0.05

Rated speed rpm : 500
rack travel mm : 9.45
Tolerance mm : +- 0.05

Rated speed rpm : 800
rack travel mm : 9.00
Tolerance mm : +- 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 3.5

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 61.5
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 3.5

BREAKAWAY

Rack travel in mm : 7.50
Rated speed rpm : 1195
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : +- 1.00

LOW IDLE

Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.04.96
Test oil : ISO 4113
Combination No. : 9 400 085 261
Injection pump
Pump designation : PES6A80D320RS1271
EP type number : 9 400 083 058
Governor
Governor design. : RSV350...1250A0C2029
: -3R
Governor no. : 9 420 083 271
Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : D 229-6

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 003
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

Beginning of delivery differende

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1250
Rack travel in mm : 8.25
Tolerance mm : ± 0.05
Del. quantity
cm3/1000 strokes : 50.0
Tolerance
cm3/1000 strokes : ± 0.5
Check tolerance
cm3/1000S. : ± 2.0

<hr/>	
Spreed	
Tolerance	
cm3/1000 strokes :	2.5
<hr/>	
Check tolerance	
cm3/1000S.	: 4.0
<hr/>	
Del. quantity	
cm3/1000 strokes :	8.0
Tolerance	
cm3/1000 strokes :	+ 1.5
Check tolerance	
cm3/1000S.	: + 3.5
Spreed	
Tolerance	
cm3/1000 strokes :	4.0
Check tolerance	
cm3/1000S.	: 6.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm :	800
Rack travel in mm :	0.65
Tolerance mm :	+ 0.35
<hr/>	
governor spring	
pre-tension	
click setting x :	4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1250
Aneroid pressure	
hPa :	-
Del. quantity	
cm3/1000 strokes :	50.0
Tolerance	
cm3/1000 strokes :	+ 0.5
Check tolerance	
cm3/1000S.	: + 2.0
Spreed	
Tolerance	
cm3/1000 strokes :	2.5
Check tolerance	
cm3/1000S.	: 4.0

CONTROL LEVER

control lever	
position degree :	106.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	7.20
Rated speed rpm :	1295
Tolerance 1/min :	+ 5
<hr/>	
rack travel mm :	4.00
Rated speed rpm :	1335
Tolerance 1/min :	+ 15
<hr/>	
rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1450

LOW IDLE

control lever	
position degree :	79.0
tolerance degree :	+ 4.0

Setting point w/out bumper spring

Rated speed rpm :	350
rack travel mm :	5.50

Testing:

Rated speed rpm :	350
rack travel mm :	6.00
Tolerance mm :	+ 0.10

rack travel mm :	2.00
Rated speed rpm :	510
Tolerance 1/min :	+ 30

Rated speed rpm :	100
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CRT mm min. :	> 19.00
---------------	---------

TORQUE CONTROL

Rated speed rpm :	1250
rack travel mm :	8.25
Tolerance mm :	+ 0.05

Rated speed rpm :	500
rack travel mm :	9.85
Tolerance mm :	+ 0.05

Rated speed rpm :	800
rack travel mm :	9.25

Tolerance mm : +- 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 51.5
Tolerance
cm³/1000 strokes : +- 1.5
Check tolerance
cm³/1000S. : +- 3.0

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 strokes : +- 1.5
Check tolerance
cm³/1000S. : +- 3.0

BREAKAWAY

Rack travel in mm : 7.20
Rated speed rpm : 1295
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : +- 1.00

LOW IDLE

Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 strokes : +- 1.5
Check tolerance
cm³/1000S. : +- 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.04.96
 Test oil : ISO 4113
 Combination No. : 9 400 085 268
 Injection pump
 Pump designation : PES4A90D32ORS2702
 EP type number : 9 400 083 095
 Governor
 Governor design. : RSV350...1150A2C2129
 : -7R
 Governor no. : 9 420 083 273
 Cust. part No. :

Customer-spec. information
 Customer : MWM
 Motor : TD 229 EC-4
 Power KW : 66.2

TEST BENCH REQUIREMENTS

Inlet line : 3.1
 Test oil inlet
 temp. °C : 40
 Tolerance °C : ± 2.0
 Overflow valve : 1 419 992 198
 Inlet press. bar : 1.5
 Test nozzle holder
 assembly : 0 681 343 009
 Opening pressure
 bar : 173.5
 Tolerance bar : ± 1.5
 Test Lines : 1 680 750 003
 Outside diameter : 6.0

K16

x inside diameter : 2.0
 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
 Tolerance bar : ± 1.0
 Prestroke mm : 2.70
 Tolerance mm : ± 0.05
 Check
 tolerance mm : ± 0.10
 Rack travel in mm : 10.50
 Tolerance mm : ± 1.50
 Firing order : 1- 3- 4- 2
 Phasing : 0-90-180-270
 Beginning of delivery difference
 and maximum rack
 travel : 10.50
 Tolerance mm : ± 1.50
 Difference ° CS : 3.50

BASIC SETTING

Rated speed rpm : 1150
 Rack travel in mm : 10.35
 Tolerance mm : ± 0.05
 Del. quantity
 cm³/1000 strokes : 78.0
 Tolerance
 cm³/1000 strokes : ± 0.5
 Check tolerance
 cm³/1000s. : ± 2.5
 Spread

Tolerance
 cm³/1000 strokes : 3.0

Check tolerance
 cm³/1000S. : 7.0

Del. quantity
 cm³/1000 strokes : 13.0

Tolerance
 cm³/1000 strokes : + 2.0

Check tolerance
 cm³/1000S. : + 4.0

Spreed
 Tolerance
 cm³/1000 strokes : 4.5

Check tolerance
 cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65

Tolerance mm : + 0.35

governor spring
 pre-tension
 click setting x : 4.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure
 hPa : -

Del. quantity
 cm³/1000 strokes : 78.0

Tolerance
 cm³/1000 strokes : + 0.5

Check tolerance
 cm³/1000S. : + 2.5

Spreed
 Tolerance
 cm³/1000 strokes : 3.0

Check tolerance
 cm³/1000S. : 7.0

CONTROL LEVER

control lever
 position degree : 97.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 9.30

Rated speed rpm : 1195

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1255

Tolerance 1/min : + 15

rack travel mm : 0.85

Tolerance mm : + 0.55

Rated speed rpm : 1400

LOW IDLE

control lever
 position degree : 72.0

tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 350

rack travel mm : 5.10

Testing:

Rated speed rpm : 350

rack travel mm : 5.60

Tolerance mm : + 0.10

rack travel mm : 2.00

Rated speed rpm : 580

Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1150

rack travel mm : 10.35

Tolerance mm : + 0.05

Rated speed rpm : 500

rack travel mm : 10.85

Tolerance mm : + 0.05

Rated speed rpm : 700

rack travel mm : 10.60

Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 71.0
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 3.5

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 72.5
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 3.5

BREAKAWAY

Rack travel in mm : 9.30
Rated speed rpm : 1195
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : ± 1.00

LOW IDLE

Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.04.96
Test oil : ISO 4113
Combination No. : 9 400 085 272
Injection pump
Pump designation : PES4A90D320RS2744
EP type number : 9 400 084 012
Governor
Governor design. : RSV350...1300A2C2215
: -2R
Governor no. : 9 420 083 275
Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : TD 229-4

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : +- 1.5
Test Lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0
Prestroke mm : 2.75
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10
Rack travel in mm : 10.50
Tolerance mm : +- 1.50
Firing order : 1- 3- 4- 2
Phasing : 0-90-180-270
Beginning of delivery differende
and maximum rack
travel : 10.50
Tolerance mm : +- 1.50
Difference ° CS : 3.50

BASIC SETTING

Rated speed rpm : 1300
Rack travel in mm : 10.65
Tolerance mm : +- 0.05
Del. quantity
cm³/1000 strokes : 89.5
Tolerance
cm³/1000 strokes : +- 0.5
Check tolerance
cm³/1000S. : +- 2.5
Speed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 5.0

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.0

Spread
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : ± 0.35

governor spring
pre-tension
click setting x : 5.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 89.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.5

Spread
Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 5.0

CONTROL LEVER

control lever
position degree : 109.0
tolerance degree : ± 4.0

K20

RATED SPEED

rack travel mm : 9.60
Rated speed rpm : 1345
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1425
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 78.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 4.50

Testing:

Rated speed rpm : 350
rack travel mm : 5.00
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 570
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 10.65
Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 11.25
Tolerance mm : ± 0.05

Rated speed rpm : 800
rack travel mm : 11.05
Tolerance mm : ± 0.15

Rated speed rpm : 900
rack travel mm : 10.85

Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 88.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

Aneroid pressure
hPa : -
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

BREAKAWAY

Rack travel in mm : 9.60
Rated speed rpm : 1345
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.5

K21

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.96
Test oil : ISO 4113
Combination No. : 9 400 085 313
Injection pump
Pump designation : PES4A90D32ORS2744
EP type number : 9 400 084 012
Governor
Governor design. : RSV350...1150A2C2129
: -8R
Governor no. : 9 420 083 277
Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : TD 229 EC-4
Power KW : 73.6

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 014
Outside diameter : 6.0

K22

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Beginning of delivery differende

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 3.50

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 10.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 87.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.5

Speed

Tolerance
 cm³/1000 strokes : 3.0

Check tolerance
 cm³/1000S. : 7.0

Del. quantity
 cm³/1000 strokes : 13.0

Tolerance
 cm³/1000 strokes : +- 2.0

Check tolerance
 cm³/1000S. : +- 4.0

Spread
 Tolerance
 cm³/1000 strokes : 4.5

Check tolerance
 cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65

Tolerance mm : +- 0.35

governor spring
 pre-tension
 click setting x : 5.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure
 hPa : -

Del. quantity
 cm³/1000 strokes : 87.0

Tolerance
 cm³/1000 strokes : +- 0.5

Check tolerance
 cm³/1000S. : +- 2.5

Spread
 Tolerance
 cm³/1000 strokes : 3.0

Check tolerance
 cm³/1000S. : 7.0

CONTROL LEVER

control lever
 position degree : 103.0

tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 9.50

Rated speed rpm : 1195

Tolerance 1/min : +- 5

rack travel mm : 4.00

Rated speed rpm : 1275

Tolerance 1/min : +- 15

rack travel mm : 0.85

Tolerance mm : +- 0.55

Rated speed rpm : 1450

LOW IDLE

control lever
 position degree : 77.0

tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 350

rack travel mm : 4.90

Testing:

Rated speed rpm : 350

rack travel mm : 5.40

Tolerance mm : +- 0.10

rack travel mm : 2.00

Rated speed rpm : 585

Tolerance 1/min : +- 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1150

rack travel mm : 10.55

Tolerance mm : +- 0.05

Rated speed rpm : 500

rack travel mm : 10.85

Tolerance mm : +- 0.05

Rated speed rpm : 800

rack travel mm : 10.85

Tolerance mm : +- 0.05

Rated speed rpm : 960

rack travel mm : 10.70

Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 81.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 86.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5

BREAKAWAY

Rack travel in mm : 9.50
Rated speed rpm : 1195
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.96
Test oil : ISO 4113
Combination No. : 9 400 085 314
Injection pump
Pump designation : PES6A90D320RS2718
EP type number : 9 400 084 003
Governor
Governor design. : RSV350...1150A2C2097
: -2R
Governor no. : 9 420 083 276
Cust. part No. :

Customer-spec. information

Customer : MWM
Motor : TD 229 EC-06
Power KW : 117.8

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : + 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

K25

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 2.75
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

Beginning of delivery differende

and maximum rack
travel : 10.50
Tolerance mm : + 1.50
Difference ° CS : 3.50

BASIC SETTING

Rated speed rpm : 1150
Rack travel in mm : 11.75
Tolerance mm : + 0.05
Del. quantity
cm3/1000 strokes : 91.0
Tolerance
cm3/1000 strokes : + 0.5
Check tolerance
cm3/1000S. : + 2.5

<hr/>	
Spreed	
Tolerance	
cm ³ /1000 strokes :	3.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: 7.0
<hr/>	
Del. quantity	
cm ³ /1000 strokes :	15.5
Tolerance	
cm ³ /1000 strokes :	+ 2.0
Check tolerance	
cm ³ /1000S.	: + 4.0
Spreed	
Tolerance	
cm ³ /1000 strokes :	4.5
Check tolerance	
cm ³ /1000S.	: 7.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm :	800
<hr/>	
Rack travel in mm :	0.65
Tolerance mm :	+ 0.35
<hr/>	
governor spring	
pre-tension	
click setting x :	4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1150
Aneroid pressure	
hPa :	-
Del. quantity	
cm ³ /1000 strokes :	91.0
Tolerance	
cm ³ /1000 strokes :	+ 0.5
Check tolerance	
cm ³ /1000S.	: + 2.5
Spreed	
Tolerance	
cm ³ /1000 strokes :	3.0
Check tolerance	
cm ³ /1000S.	: 7.0

CONTROL LEVER

control lever	
position degree :	97.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	10.70
Rated speed rpm :	1195
Tolerance 1/min :	+ 5
<hr/>	
rack travel mm :	4.00
Rated speed rpm :	1265
Tolerance 1/min :	+ 15
<hr/>	
rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1450

LOW IDLE

control lever	
position degree :	72.0
tolerance degree :	+ 4.0

Setting point w/out bumper spring

Rated speed rpm :	350
rack travel mm :	6.00

Testing:

Rated speed rpm :	350
rack travel mm :	6.50
Tolerance mm :	+ 0.10
<hr/>	
rack travel mm :	2.00
Rated speed rpm :	620
Tolerance 1/min :	+ 30
<hr/>	
Rated speed rpm :	100
CRT mm min. :	> 19.00

TORQUE CONTROL

Rated speed rpm :	1150
rack travel mm :	11.75
Tolerance mm :	+ 0.05
<hr/>	
Rated speed rpm :	500
rack travel mm :	12.15
Tolerance mm :	+ 0.05
<hr/>	
Rated speed rpm :	800
rack travel mm :	11.95

Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 3.5

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 3.5

BREAKAWAY

Rack travel in mm : 10.70
Rated speed rpm : 1195
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

LOW IDLE

Del. quantity
cm³/1000 strokes : 15.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000s. : 7.0

K27

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.96
Test oil : ISO 4113
Combination No. : 9 400 085 316
Injection pump
Pump designation : PES6A95D410RS2795
EP type number : 9 400 084 020
Governor
Governor design. : RQV300...1400AB1065
: -18L
Governor no. : 9 420 080 278
Cust. part No. :

Customer-spec. information
Customer : MBB
Motor : OM 366
Power KW : 100.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

K28

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 1400
Rack travel in mm : 9.95
Tolerance mm : ± 0.05
Del. quantity
cm3/1000 strokes : 69.5
Tolerance
cm3/1000 strokes : ± 1.0
Check tolerance
cm3/1000S. : ± 3.0
Speed
Tolerance
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 8.0

Del. quantity
 cm³/1000 strokes : 11.0
 Tolerance
 cm³/1000 strokes : +- 2.0
 Check tolerance
 cm³/1000S. : +- 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500
 guide sleeve
 travel mm : 8.55
 Tolerance mm : +- 0.05

Rated speed rpm : 750
 guide sleeve
 travel mm : 4.20
 Tolerance mm : +- 0.10

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.05
 Tolerance mm : +- 0.25

Rated speed rpm : 500
 guide sleeve
 travel mm : 2.55
 Tolerance mm : +- 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1500
 Rack travel in mm : 16.50
 Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 69.5
 Tolerance
 cm³/1000 strokes : +- 1.0
 Check tolerance
 cm³/1000S. : +- 3.0

L01

Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 8.0

CONTROL LEVER

control lever
 position degree : 62.0
 tolerance degree : +- 4.0

control lever
 position degree : 110.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 8.90
 Rated speed rpm : 1465
 Tolerance 1/min : +- 5

rack travel mm : 4.00
 Rated speed rpm : 1560
 Tolerance 1/min : +- 15

rack travel mm : 0.50
 Tolerance mm : +- 0.50
 Rated speed rpm : 1680

LOW IDLE

control lever
 position degree : 70.0
 tolerance degree : +- 4.0

control lever
 position degree : 21.0
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 7.90
 Tolerance mm : +- 0.10

Rated speed rpm : 100
 CRT mm min. : > 8.00

Rated speed rpm : 555

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 9.95
Tolerance mm : +- 0.05

Rated speed rpm : 600
rack travel mm : 9.95
Tolerance mm : +- 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 250

Check speed 1/min : > 80
Check speed 1/min : < 270

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 51.5
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.0

BREAKAWAY

Rack travel in mm : 8.90
Rated speed rpm : 1465
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 14.10
Tolerance mm : +- 0.10
Del. quantity
cm³/1000 strokes : 84.0
Tolerance
cm³/1000 strokes : +- 7.5
Check tolerance
cm³/1000S. : +- 10.0

LOW IDLE

L02

Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.5
Spread
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.96
Test oil : ISO 4113
Combination No. : 9 400 085 333
Injection pump
Pump designation : PES4A95D410RS2805
EP type number : 9 400 084 026
Governor
Governor design. : RQV300...1400AB1065
: -21L
Governor no. : 9 420 080 303
Cust. part No. :

Customer-spec. information
Customer : MBB
Motor : OM 364
Power KW : 66.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

L03

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 3- 4- 2
Phasing : 0-90-180-270

BASIC SETTING

Rated speed rpm : 1400
Rack travel in mm : 9.75
Tolerance mm : ± 0.05
Del. quantity
cm3/1000 strokes : 69.0
Tolerance
cm3/1000 strokes : ± 1.0
Check tolerance
cm3/1000S. : ± 3.0
Spreed
Tolerance
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 8.0

Del. quantity
 cm³/1000 strokes : 8.0
 Tolerance
 cm³/1000 strokes : +- 2.0
 Check tolerance
 cm³/1000S. : +- 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500
 guide sleeve
 travel mm : 8.55
 Tolerance mm : +- 0.05

Rated speed rpm : 750
 guide sleeve
 travel mm : 4.20
 Tolerance mm : +- 0.10

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.05
 Tolerance mm : +- 0.25

Rated speed rpm : 500
 guide sleeve
 travel mm : 2.55
 Tolerance mm : +- 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1500
 Rack travel in mm : 16.50
 Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 69.0
 Tolerance
 cm³/1000 strokes : +- 1.0
 Check tolerance
 cm³/1000S. : +- 3.0
 Spreed

L04

Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 8.0

CONTROL LEVER

control lever
 position degree : 62.0
 tolerance degree : +- 4.0

control lever
 position degree : 111.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 8.70
 Rated speed rpm : 1465
 Tolerance 1/min : +- 5

rack travel mm : 4.00
 Rated speed rpm : 1555
 Tolerance 1/min : +- 15

rack travel mm : 0.50
 Tolerance mm : +- 0.50
 Rated speed rpm : 1680

LOW IDLE

control lever
 position degree : 69.0
 tolerance degree : +- 4.0

control lever
 position degree : 20.0
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 7.50
 Tolerance mm : +- 0.10

Rated speed rpm : 100
 CRT mm min. : > 7.50

Rated speed rpm : 555

TORQUE CONTROL

Rated speed rpm : 1400

rack travel mm : 9.75
Tolerance mm : ± 0.05

Rated speed rpm : 700
rack travel mm : 9.75
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 250

Check
speed 1/min : > 80
Check
speed 1/min : < 270

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 56.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 8.70
Rated speed rpm : 1465
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.90
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 84.0
Tolerance
cm³/1000 strokes : ± 7.5
Check tolerance
cm³/1000S. : ± 10.0

LOW IDLE

L05

Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.96
Test oil : ISO 4113
Combination No. : 9 400 085 337
Injection pump
Pump designation : PES6A95D410RS2812
EP type number : 9 400 084 028
Governor
Governor design. : RQV350...1300AB1260L
Governor no. : 9 420 080 306
Cust. part No. : 9.0520.05.6.9501

Customer-spec. information
Customer : MWM
Motor : TD 610 / X-10
Power KW : 143.9

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Test nozzle holde assembly : 0 681 343 009
Opening pressure bar : 173.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 014
Outside diameter : 6.0

L06

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

Beginning of delivery differende
and maximum rack travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 2.00

BASIC SETTING

Rated speed rpm : 1300
Rack travel in mm : 12.05
Tolerance mm : ± 0.05
Del. quantity cm3/1000 strokes : 94.5
Tolerance cm3/1000 strokes : ± 1.0
Check tolerance cm3/1000s. : ± 3.0

<hr/>	
Spreed	
Tolerance	
cm ³ /1000 strokes :	3.5
<hr/>	
Check tolerance	
cm ³ /1000S. :	8.0
<hr/>	
Del. quantity	
cm ³ /1000 strokes :	10.5
Tolerance	
cm ³ /1000 strokes :	+ 2.0
Check tolerance	
cm ³ /1000S. :	+ 4.5
Spreed	
Tolerance	
cm ³ /1000 strokes :	5.5
Check tolerance	
cm ³ /1000S. :	9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	1350
guide sleeve	
travel mm :	7.20
Tolerance mm :	+ 0.10

Rated speed rpm :	800
guide sleeve	
travel mm :	3.95
Tolerance mm :	+ 0.25

Rated speed rpm :	300
guide sleeve	
travel mm :	1.05
Tolerance mm :	+ 0.25

Rated speed rpm :	550
guide sleeve	
travel mm :	2.75
Tolerance mm :	+ 0.25

Rated speed rpm :	1500
guide sleeve	
travel mm :	8.55
Tolerance mm :	+ 0.25

GUIDE SLEEVE POSITION

Rated speed rpm :	1490
Rack travel in mm :	16.50
Tolerance mm :	+ 1.30

L07

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1300
Aneroid pressure	
hPa :	800
Del. quantity	
cm ³ /1000 strokes :	94.5
Tolerance	
cm ³ /1000 strokes :	+ 1.0
Check tolerance	
cm ³ /1000S. :	+ 3.0
Spreed	
Tolerance	
cm ³ /1000 strokes :	3.5
Check tolerance	
cm ³ /1000S. :	8.0

CONTROL LEVER

control lever	
position degree :	56.0
tolerance degree :	+ 4.0

control lever	
position degree :	111.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	11.00
Rated speed rpm :	1345
Tolerance 1/min :	+ 5

rack travel mm :	4.00
Rated speed rpm :	1505
Tolerance 1/min :	+ 15

rack travel mm :	0.50
Tolerance mm :	+ 0.50
Rated speed rpm :	1650

LOW IDLE

control lever	
position degree :	67.0
tolerance degree :	+ 4.0

control lever	
position degree :	12.0
tolerance degree :	+ 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.50
Tolerance mm : +- 0.10

Rated speed rpm : 100
CRT mm min. : > 6.50

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 12.05
Tolerance mm : +- 0.05

Rated speed rpm : 800
rack travel mm : 12.35
Tolerance mm : +- 0.05

Rated speed rpm : 850
rack travel mm : 12.35
Tolerance mm : +- 0.05

Rated speed rpm : 1150
rack travel mm : 12.05
Tolerance mm : +- 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 800
rack travel mm : 12.35
Tolerance mm : +- 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 190
rack travel mm : 0.45
Tolerance mm : +- 0.05

Pressure hPa : 460
rack travel mm : 1.55
Tolerance mm : +- 0.15

START CUT-OUT

Rated speed rpm : > 100

L08

Rated speed rpm : < 270

Check
speed 1/min : > 80

Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 95.5
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 59.5
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 3.0

BREAKAWAY

Rack travel in mm : 11.00
Rated speed rpm : 1345
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : +- 1.00

LOW IDLE

Del. quantity
cm³/1000 strokes : 10.5
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.96
Test oil : ISO 4113
Combination No. : 9 400 085 346
Injection pump
Pump designation : PES4A95D410RS2805
EP type number : 9 400 084 026
Governor
Governor design. : RSV350...900A7C2076
: -2L
Governor no. : 9 420 083 253
Cust. part No. :

Customer-spec. information
Customer : MBB
Motor : OM 364
Power KW : 46.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

L10

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 3- 4- 2
Phasing : 0-90-180-270

BASIC SETTING

Rated speed rpm : 860
Rack travel in mm : 8.65
Tolerance mm : ± 0.05
Del. quantity
cm3/1000 strokes : 58.5
Tolerance
cm3/1000 strokes : ± 1.0
Check tolerance
cm3/1000S. : ± 3.0
Spreed
Tolerance
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 8.0

Del. quantity
 cm³/1000 strokes : 7.5
 Tolerance
 cm³/1000 strokes : ± 2.0
 Check tolerance
 cm³/1000S. : ± 4.5
 Spread
 Tolerance
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : ± 0.20
 governor spring
 pre-tension
 click setting x : 6.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 860
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 58.5
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 3.0
 Spread
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 8.0

CONTROL LEVER

control lever
 position degree : 112.0
 tolerance degree : ± 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 910
 rack travel mm : 7.60

Rated speed rpm : 935
 Tolerance 1/min : ± 4
 rack travel mm : 4.00

rack travel mm : 0.85
 Tolerance mm : ± 0.55
 Rated speed rpm : 1100

Rated speed rpm : 911
 rack travel mm : 7.60

Rated speed rpm : 936
 Tolerance 1/min : ± 4
 rack travel mm : 4.00

rack travel mm : 0.85
 Tolerance mm : ± 0.55
 Rated speed rpm : 1100

Rated speed rpm : 912
 rack travel mm : 7.60

Rated speed rpm : 937
 Tolerance 1/min : ± 4
 rack travel mm : 4.00

rack travel mm : 0.85
 Tolerance mm : ± 0.55
 Rated speed rpm : 1100

Rated speed rpm : 913
 rack travel mm : 7.60

Rated speed rpm : 938
 Tolerance 1/min : ± 4
 rack travel mm : 4.00

rack travel mm : 0.85
 Tolerance mm : ± 0.55
 Rated speed rpm : 1100

Rated speed rpm : 914
 rack travel mm : 7.60

Rated speed rpm : 939
 Tolerance 1/min : ± 4
 rack travel mm : 4.00

rack travel mm : 0.85
 Tolerance mm : ± 0.55
 Rated speed rpm : 1100

Rated speed rpm : 915
 rack travel mm : 7.60

Rated speed rpm : 940
 Tolerance 1/min : ± 4
 rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1100

LOW IDLE

control lever
position degree : 82.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 6.00

Testing:

Rated speed rpm : 350
rack travel mm : 6.50
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 410
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 860
rack travel mm : 8.65
Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 8.70
Tolerance mm : ± 0.10

Rated speed rpm : 400
rack travel mm : 9.60
Tolerance mm : ± 0.30

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.40
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 84.0

L12

Tolerance
cm³/1000 strokes : ± 7.5
Check tolerance
cm³/1000s. : ± 10.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 7.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000s. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000s. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.96
Test oil : ISO 4113
Combination No. : 9 400 085 348
Injection pump
Pump designation : PES6A95D410RS2812
EP type number : 9 400 084 028
Governor
Governor design. : RSV350...900A7C805L
Governor no. : 9 420 083 263
Cust. part No. : 9.0520.05.6.9504

Customer-spec. information
Customer : MWM
Motor : 6.10 TCA
Power KW : 154.5

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder assembly : 0 681 343 009
Opening pressure bar : 173.5
Tolerance bar : +- 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0
Prestroke mm : 2.80
Tolerance mm : +- 0.05
Check tolerance mm : +- 0.10
Rack travel in mm : 10.50
Tolerance mm : +- 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

Beginning of delivery difference
and maximum rack travel : 10.50
Tolerance mm : +- 1.50
Difference ° CS : 2.00

BASIC SETTING

Rated speed rpm : 850
Rack travel in mm : 13.95
Tolerance mm : +- 0.05
Del. quantity cm3/1000 strokes : 137.5
Tolerance cm3/1000 strokes : +- 1.0
Check tolerance cm3/1000s. : +- 3.0

Spreed
Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 8.0

Del. quantity
cm3/1000 strokes : 17.5

Tolerance
cm3/1000 strokes : +- 2.0

Check tolerance
cm3/1000S. : +- 4.5

Spreed
Tolerance
cm3/1000 strokes : 5.5

Check tolerance
cm3/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65

Tolerance mm : +- 0.35

governor spring
pre-tension
click setting x : 5.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850

Aneroid pressure
hPa : -

Del. quantity
cm3/1000 strokes : 137.5

Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 3.0

Spreed
Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 106.0
tolerance degree : +- 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 900
rack travel mm : 13.00

Rated speed rpm : 945
Tolerance 1/min : +- 4

rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : +- 0.55

Rated speed rpm : 1100

Rated speed rpm : 901
rack travel mm : 13.00

Rated speed rpm : 946
Tolerance 1/min : +- 4

rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : +- 0.55

Rated speed rpm : 1100

Rated speed rpm : 902
rack travel mm : 13.00

Rated speed rpm : 947
Tolerance 1/min : +- 4

rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : +- 0.55

Rated speed rpm : 1100

Rated speed rpm : 903
rack travel mm : 13.00

Rated speed rpm : 948
Tolerance 1/min : +- 4

rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : +- 0.55

Rated speed rpm : 1100

Rated speed rpm : 904
rack travel mm : 13.00

Rated speed rpm : 949
Tolerance 1/min : +- 4

rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm : +- 0.55
Rated speed rpm : 1100

Rated speed rpm : 905
rack travel mm : 13.00

Rated speed rpm : 950
Tolerance 1/min : +- 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1100

LOW IDLE

control lever
position degree : 75.0
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 5.00

Testing:

Rated speed rpm : 350
rack travel mm : 5.50
Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 395
Tolerance 1/min : +- 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 850
rack travel mm : 13.95
Tolerance mm : +- 0.05

Rated speed rpm : 550
rack travel mm : 14.00
Tolerance mm : +- 0.10

Rated speed rpm : 400
rack travel mm : 15.50
Tolerance mm : +- 0.30

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : +- 1.00

LOW IDLE

Del. quantity
cm³/1000 strokes : 17.5
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.96
Test oil : ISO 4113
Combination No. : 9 400 085 352
Injection pump
Pump designation : PES6A95D410RS2795
EP type number : 9 400 084 020
Governor
Governor design. : RSV350...1050A0C1150
: -7L
Governor no. : 9 420 083 287
Cust. part No. :

Customer-spec. information

Customer : MBB
Motor : OM 366
Power KW : 70.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : +- 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0
Prestroke mm : 3.25
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10
Rack travel in mm : 10.50
Tolerance mm : +- 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 1050
Rack travel in mm : 7.85
Tolerance mm : +- 0.05
Del. quantity
cm³/1000 strokes : 48.5
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 3.0
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

Del. quantity
 cm³/1000 strokes : 13.0
 Tolerance
 cm³/1000 strokes : +- 2.0
 Check tolerance
 cm³/1000S. : +- 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
 Rack travel in mm : 0.65
 Tolerance mm : +- 0.35
 governor spring
 pre-tension
 click setting x : 5.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 48.5
 Tolerance
 cm³/1000 strokes : +- 1.0
 Check tolerance
 cm³/1000S. : +- 3.0
 Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 8.0

CONTROL LEVER

control lever
 position degree : 105.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 6.80
 Rated speed rpm : 1095

L17

Tolerance 1/min : +- 5
 rack travel mm : 4.00
 Rated speed rpm : 1145
 Tolerance 1/min : +- 15

rack travel mm : 0.85
 Tolerance mm : +- 0.55
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 85.0
 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
 rack travel mm : 6.50

Testing:

Rated speed rpm : 350
 rack travel mm : 7.00
 Tolerance mm : +- 0.10

rack travel mm : 2.00
 Rated speed rpm : 585
 Tolerance 1/min : +- 30

Rated speed rpm : 100
 CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1050
 rack travel mm : 7.85
 Tolerance mm : +- 0.05

Rated speed rpm : 600
 rack travel mm : 9.25
 Tolerance mm : +- 0.05

Rated speed rpm : 900
 rack travel mm : 8.20
 Tolerance mm : +- 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 53.5
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.0

BREAKAWAY

Rack travel in mm : 6.80
Rated speed rpm : 1095
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.00
Tolerance mm : +- 0.10
Del. quantity
cm³/1000 strokes : 84.0
Tolerance
cm³/1000 strokes : +- 7.5
Check tolerance
cm³/1000S. : +- 10.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 305
Injection pump
Pump designation : PES6P110A72ORS3145
EP type number : 9 400 087 033
Governor
Governor design. : RQV350...1300PA748
Governor no. : 9 420 080 193

Cust. part No. :

Customer-spec. information
Customer : FORD
Motor : 6,6l TC
Power KW : 123.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 017
Opening pressure
bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 4.30
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

Beginning of delivery differende
and maximum rack
travel : 10.50
Tolerance mm : + 1.50
Difference ° CS : 3.75

BASIC SETTING

Rated speed rpm : 1300
Rack travel in mm : 11.65
Tolerance mm : + 0.05
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 4.0

Spreed
 Tolerance
 cm³/1000 strokes : 4.0

Check tolerance
 cm³/1000S. : 7.5

Del. quantity
 cm³/1000 strokes : 12.5
 Tolerance
 cm³/1000 strokes : +- 2.5
 Check tolerance
 cm³/1000S. : +- 5.0

Spreed
 Tolerance
 cm³/1000 strokes : 4.5
 Check tolerance
 cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1300
 guide sleeve
 travel mm : 7.25
 Tolerance mm : +- 0.05

Rated speed rpm : 500
 guide sleeve
 travel mm : 2.50
 Tolerance mm : +- 0.20

Rated speed rpm : 1000
 guide sleeve
 travel mm : 5.15
 Tolerance mm : +- 0.15

Rated speed rpm : 800
 guide sleeve
 travel mm : 4.15
 Tolerance mm : +- 0.15

Rated speed rpm : 350
 guide sleeve
 travel mm : 0.95
 Tolerance mm : +- 0.35

GUIDE SLEEVE POSITION

Rated speed rpm : 1350
 Rack travel in mm : 16.50
 Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 95.0
 Tolerance
 cm³/1000 strokes : +- 1.5
 Check tolerance
 cm³/1000S. : +- 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 7.5

CONTROL LEVER

control lever
 position degree : 64.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 10.60
 Rated speed rpm : 1365
 Tolerance 1/min : +- 5

rack travel mm : 4.00
 Rated speed rpm : 1485
 Tolerance 1/min : +- 15

rack travel mm : 0.50
 Tolerance mm : +- 0.50
 Rated speed rpm : 1600

LOW IDLE

control lever
 position degree : 16.0
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 350
 rack travel mm : 7.00
 Tolerance mm : +- 0.10

rack travel mm : 2.00
 Rated speed rpm : 610
 Tolerance 1/min : +- 30

Rated speed rpm : 100
CRT mm min. : > 10.00
Rated speed rpm : 405

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 11.65
Tolerance mm : ± 0.05
Rated speed rpm : 800
rack travel mm : 11.65
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 230
Rated speed rpm : < 290
Check speed 1/min : > 210
Check speed 1/min : < 310

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 93.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 10.60
Rated speed rpm : 1365
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 115.0

Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 12.5
Tolerance
cm³/1000 strokes : ± 2.5
Check tolerance
cm³/1000S. : ± 5.0
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 308
Injection pump
Pump designation : PE5P110A720RS479
EP type number : 9 400 087 040
Governor
Governor design. : RQ300/1050PA718-1
Governor no. : 9 420 080 187
Cust. part No. : 3450749401

Customer-spec. information
Customer : MBB
Motor : OM355-5 A
Power KW : 170.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 000
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 004
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 2- 4- 5- 3
Phasing : 0-72-144-216-288

BASIC SETTING

Rated speed rpm : 1050
Rack travel in mm : 12.25
Tolerance mm : ± 0.05
Del. quantity
cm3/1000 strokes : 162.0
Tolerance
cm3/1000 strokes : ± 1.0
Check tolerance
cm3/1000S. : ± 4.0
Spreed
Tolerance
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 7.5

Del. quantity
 cm³/1000 strokes : 13.5
 Tolerance
 cm³/1000 strokes : ± 2.5
 Spreed
 Tolerance
 cm³/1000 strokes : 4.5
 Check tolerance
 cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 2.40
 Tolerance mm : ± 0.20

Rated speed rpm : 1100
 guide sleeve
 travel mm : 6.85
 Tolerance mm : ± 0.25

Rated speed rpm : 600
 guide sleeve
 travel mm : 6.00
 Tolerance mm : ± 0.10

Rated speed rpm : 900
 guide sleeve
 travel mm : 6.20
 Tolerance mm : ± 0.10

Rated speed rpm : 1170
 guide sleeve
 travel mm : 9.75
 Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00
 Tolerance mm : ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 700
 Del. quantity
 cm³/1000 strokes : 162.0
 Tolerance
 cm³/1000 strokes : ± 1.0

Check tolerance
 cm³/1000S. : ± 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 7.5

CONTROL LEVER

control lever
 position degree : 34.0
 tolerance degree : ± 4.0

control lever
 position degree : 96.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.20
 Rated speed rpm : 1103
 Tolerance 1/min : ± 8

rack travel mm : 4.00
 Rated speed rpm : 1165
 Tolerance 1/min : ± 15

rack travel mm : 0.50
 Tolerance mm : ± 0.50
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 75.0
 tolerance degree : ± 4.0

control lever
 position degree : 13.0
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 6.50
 Tolerance mm : ± 0.10

rack travel mm : 2.00
 Rated speed rpm : 395
 Tolerance 1/min : ± 20

Rated speed rpm : 100

CRT mm min. : > 8.50

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 13.15
Tolerance mm : \pm 0.05

Rated speed rpm : 900
rack travel mm : 12.85
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 13.15
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.35
Tolerance mm : \pm 0.05

Rated speed rpm : 500

Pressure hPa : 250
rack travel mm : 11.20
Tolerance mm : \pm 0.10

Pressure hPa : 400
rack travel mm : 12.45
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : > 110
Rated speed rpm : < 230

Check speed 1/min : > 90
Check speed 1/min : < 270

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 700
Rated speed rpm : 600
Del. quantity cm³/1000 strokes : 179.0
Tolerance cm³/1000 strokes : \pm 2.0
Check tolerance cm³/1000S. : \pm 5.0

Aneroid pressure hPa : 700
Rated speed rpm : 900
Del. quantity cm³/1000 strokes : 176.0
Tolerance cm³/1000 strokes : \pm 2.0
Check tolerance cm³/1000S. : \pm 5.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 114.0
Tolerance cm³/1000 strokes : \pm 1.0
Check tolerance cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 11.20
Rated speed rpm : 1103
Tolerance 1/min : \pm 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.80
Tolerance mm : \pm 0.50
Del. quantity cm³/1000 strokes : 160.0
Tolerance cm³/1000 strokes : \pm 10.0

LOW IDLE

Del. quantity cm³/1000 strokes : 13.5
Tolerance cm³/1000 strokes : \pm 2.5
Speed

Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000s. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 449
Injection pump
Pump designation : PES6P120A320/3RS3264
EP type number : 9 400 087 075
Governor
Governor design. : RQV350...1100PA973
Governor no. : 9 420 080 293
Cust. part No. : 3354438

Customer-spec. information
Customer : CUMMINS
Motor : 6 CTA - 8.3 L
Power KW : 216.6

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holder assembly : 1 688 901 019
Opening pressure bar : 208.5
Tolerance bar : + 1.5
Test Lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.50
Tolerance mm : + 0.05
Check tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.85
Tolerance mm : + 0.05

Del. quantity cm³/1000 strokes : 204.5

Tolerance cm³/1000 strokes : + 1.0

Check tolerance cm³/1000S. : + 4.0

Speed Tolerance cm³/1000 strokes : 5.0

Check tolerance cm³/1000S. : 9.0

Del. quantity
 cm3/1000 strokes : 9.5
 Tolerance
 cm3/1000 strokes : + 3.0
 Check tolerance
 cm3/1000S. : + 6.0
 Spreed
 Tolerance
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1150
 guide sleeve
 travel mm : 7.05
 Tolerance mm : + 0.05

Rated speed rpm : 1400
 guide sleeve
 travel mm : 9.00
 Tolerance mm : + 0.20

Rated speed rpm : 350
 guide sleeve
 travel mm : 1.60
 Tolerance mm : + 0.20

Rated speed rpm : 650
 guide sleeve
 travel mm : 4.50
 Tolerance mm : + 0.20

GUIDE SLEEVE POSITION

Rated speed rpm : 1325
 Rack travel in mm : 16.50
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1300
 Del. quantity
 cm3/1000 strokes : 204.5
 Tolerance
 cm3/1000 strokes : + 1.0
 Check tolerance
 cm3/1000S. : + 4.0

Spreed
 Tolerance
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 55.0
 tolerance degree : + 4.0

control lever
 position degree : 111.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.80
 Rated speed rpm : 1165
 Tolerance 1/min : + 5

rack travel mm : 4.00
 Rated speed rpm : 1345
 Tolerance 1/min : + 15

rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1500

LOW IDLE

control lever
 position degree : 70.0
 tolerance degree : + 4.0

control lever
 position degree : 15.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 350
 rack travel mm : 6.00
 Tolerance mm : + 0.10

Rated speed rpm : 100
 CRT mm min. : > 8.00

Rated speed rpm : 500

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 11.85
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1300
rack travel mm : 11.85
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 880
rack travel mm : 2.25
Tolerance mm : \pm 0.15

Pressure hPa : 480
rack travel mm : 0.70
Tolerance mm : \pm 0.10

START CUT-OUT

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 290

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 310

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1300
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed

Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 117.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.5

BREAKAWAY

Rack travel in mm : 10.80
Rated speed rpm : 1165
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 275.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 9.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.04.96
Test oil : ISO 4113

Combination No. : 9 400 087 459AA

Injection pump
Pump designation : PES6P120A720LS7181
EP type number : 0 412 726 824

Governor
Governor design. : RQ300/1050PA911-2
Governor no. : 9 420 080 313

Cust. part No. :

Customer-spec. information
Customer : MBB
Motor : OM447 LA
Power KW : 298.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 067

Outside diameter : 6.0

MD1

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 5.05
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 10.50
Tolerance mm : +- 1.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.40
Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 195.5

Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 4.0

Spreed
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 6.00
 Tolerance mm : + 0.20
 Del. quantity
 cm³/1000 strokes : 15.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.75
 Tolerance mm : + 0.25
 Rated speed rpm : 1120
 guide sleeve
 travel mm : 7.45
 Tolerance mm : + 0.25
 Rated speed rpm : 600
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10
 Rated speed rpm : 1050
 guide sleeve
 travel mm : 6.50
 Tolerance mm : + 0.10
 Rated speed rpm : 1160
 guide sleeve
 travel mm : 10.00
 Tolerance mm : + 0.30

GUIDE SLEEVE POSITION

Rated speed rpm : 600
 Rack travel in mm : 20.00
 Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1050
 Del. quantity
 cm³/1000 strokes : 195.5
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 40.0
 tolerance degree : + 4.0

control lever
 position degree : 101.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.30
 Rated speed rpm : 1103
 Tolerance 1/min : + 8

rack travel mm : 4.00
 Rated speed rpm : 1145
 Tolerance 1/min : + 15

rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 74.0
 tolerance degree : + 4.0

control lever
 position degree : 11.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.00
Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 380
Tolerance 1/min : +- 20

Rated speed rpm : 100

CRT mm min. : > 9.00

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 12.40
Tolerance mm : +- 0.10

Rated speed rpm : 1050
rack travel mm : 12.40
Tolerance mm : +- 0.10

Rated speed rpm : 750
rack travel mm : 12.40
Tolerance mm : +- 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

MEASUREMENT

Pressure hPa : 300
rack travel mm : -1.80
Tolerance mm : +- 0.10

Pressure hPa : 400
rack travel mm : -0.90
Tolerance mm : +- 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1050

M03

Del. quantity
cm3/1000 strokes : 195.0
Tolerance
cm3/1000 strokes : +- 2.0
Check tolerance
cm3/1000S. : +- 5.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 198.5
Tolerance
cm3/1000 strokes : +- 2.0
Check tolerance
cm3/1000S. : +- 5.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 125.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

BREAKAWAY

Rack travel in mm : 11.30
Rated speed rpm : 1103
Tolerance 1/min : +- 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 275.0
Tolerance
cm3/1000 strokes : +- 10.0

Check tolerance
cm³/1000S. : +- 14.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.00
Tolerance mm : +- 0.20
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.04.96
Test oil : ISO 4113

Combination No. : 9 400 087 459AB

Injection pump
Pump designation : PES6P120A720LS7181
EP type number : 0 412 726 824

Governor
Governor design. : RQ300/1050PA911-2
Governor no. : 9 420 080 313

Cust. part No. :

Customer-spec. information
Customer : MBB
Motor : OM447 LA
Power KW : 298.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 13.70
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 232.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
 cm³/1000S. : 9.0

 Del. quantity
 cm³/1000 strokes : 15.0
 Tolerance
 cm³/1000 strokes : ± 3.0
 Check tolerance
 cm³/1000S. : ± 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.75
 Tolerance mm : ± 0.25

Rated speed rpm : 1120
 guide sleeve
 travel mm : 7.45
 Tolerance mm : ± 0.25

Rated speed rpm : 600
 guide sleeve
 travel mm : 6.00
 Tolerance mm : ± 0.10

Rated speed rpm : 1050
 guide sleeve
 travel mm : 6.50
 Tolerance mm : ± 0.10

Rated speed rpm : 1160
 guide sleeve
 travel mm : 10.00
 Tolerance mm : ± 0.30

GUIDE SLEEVE POSITION

Rated speed rpm : 600

 Rack travel in mm : 20.00
 Tolerance mm : ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600

Aneroid pressure
 hPa : 800
 Del. quantity
 cm³/1000 strokes : 232.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 34.0
 tolerance degree : ± 4.0

control lever
 position degree : 94.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.70
 Rated speed rpm : 1103
 Tolerance 1/min : ± 8

rack travel mm : 4.00
 Rated speed rpm : 1145
 Tolerance 1/min : ± 15

rack travel mm : 0.75
 Tolerance mm : ± 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 75.0
 tolerance degree : ± 4.0

control lever
 position degree : 14.0
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 6.00
 Tolerance mm : ± 0.20

rack travel mm : 2.00

Rated speed rpm : 380
Tolerance 1/min : + 20

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 13.70
Tolerance mm : + 0.10

Rated speed rpm : 1050
rack travel mm : 13.70
Tolerance mm : + 0.10

Rated speed rpm : 800
rack travel mm : 14.20
Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

MEASUREMENT

Pressure hPa : 300
rack travel mm : -2.30
Tolerance mm : + 0.10

Pressure hPa : 600
rack travel mm : -0.40
Tolerance mm : + 0.10

Pressure hPa : 1000
rack travel mm : 0.15
Tolerance mm : + 0.05

Pressure hPa : 1100
rack travel mm : 0.40
Tolerance mm : + 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check speed 1/min : > 80
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1050

Del. quantity
cm³/1000 strokes : 224.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 239.0
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 4.5
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 12.70
Rated speed rpm : 1103
Tolerance 1/min : + 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 275.0
Tolerance
cm³/1000 strokes : + 10.0

Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 15.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Speed
Tolerance

cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 471
Injection pump
Pump designation : PE6P120A32ORS3178
EP type number : 0 411 826 752
Governor
Governor design. : RQV250...950PA921-3
Governor no. : 0 421 813 786

Cust. part No. : 8125313-P02

Customer-spec. information
Customer : VOLVO-TRUCK
Motor : TD 122 F
Power KW : 261.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holder assembly : 1 688 901 019
Opening pressure bar : 208.5
Tolerance bar : +- 1.5
Test lines : 1 680 750 067
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0
Prestroke mm : 3.65
Tolerance mm : +- 0.05
Check tolerance mm : +- 0.10
Rack travel in mm : 10.50
Tolerance mm : +- 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 700
Rack travel in mm : 13.05
Tolerance mm : +- 0.05
Del. quantity cm3/1000 strokes : 230.0
Tolerance cm3/1000 strokes : +- 1.0
Check tolerance cm3/1000S. : +- 4.0
Speed Tolerance cm3/1000 strokes : 5.0
Check tolerance cm3/1000S. : 9.0

Del. quantity
 cm³/1000 strokes : 20.0
 Tolerance
 cm³/1000 strokes : ± 3.0
 Check tolerance
 cm³/1000S. : ± 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250
 guide sleeve
 travel mm : 1.20
 Tolerance mm : ± 0.20

Rated speed rpm : 985
 guide sleeve
 travel mm : 8.20
 Tolerance mm : ± 0.10

Rated speed rpm : 450
 guide sleeve
 travel mm : 3.90
 Tolerance mm : ± 0.30

Rated speed rpm : 700
 guide sleeve
 travel mm : 6.50
 Tolerance mm : ± 0.20

Rated speed rpm : 1060
 guide sleeve
 travel mm : 9.60
 Tolerance mm : ± 0.20

GUIDE SLEEVE POSITION

Rated speed rpm : 1030
 Rack travel in mm : 16.50
 Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
 Aneroid pressure
 hPa : 900

M10

Del. quantity
 cm³/1000 strokes : 230.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 64.0
 tolerance degree : ± 4.0

control lever
 position degree : 120.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.00
 Rated speed rpm : 985
 Tolerance 1/min : ± 5

rack travel mm : 4.00
 Rated speed rpm : 1075
 Tolerance 1/min : ± 15

rack travel mm : 0.50
 Tolerance mm : ± 0.50
 Rated speed rpm : 1200

LOW IDLE

control lever
 position degree : 64.0
 tolerance degree : ± 4.0

control lever
 position degree : 9.0
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 250
 rack travel mm : 4.70
 Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 6.20

Rated speed rpm : 315

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.05
Tolerance mm : +- 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 13.05
Tolerance mm : +- 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 600
rack travel mm : 2.50
Tolerance mm : +- 0.10

Pressure hPa : 120
rack travel mm : 0.35
Tolerance mm : +- 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 164.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 985
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : +- 0.50
Del. quantity
cm³/1000 strokes : 290.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 14.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 478
Injection pump
Pump designation : PES6P120A720RS3256
: -2
EP type number : 9 400 087 080
Governor
Governor design. : RQV350...1300PA1080
Governor no. : 9 420 080 339
Cust. part No. :

Customer-spec. information
Customer : MBB
Motor : OM 366 LA
Power KW : 139.8

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 019
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 20.50
Tolerance mm : ± 0.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 1000
Rack travel in mm : 5.10
Tolerance mm : ± 0.30
Del. quantity
cm3/1000 strokes : 18.5
Tolerance
cm3/1000 strokes : ± 1.5
Check tolerance
cm3/1000s. : ± 4.5
Speed
Tolerance
cm3/1000 strokes : 2.0
Check tolerance
cm3/1000s. : 3.0

Del. quantity
 cm³/1000 strokes : 17.0
 Tolerance
 cm³/1000 strokes : +- 3.0
 Check tolerance
 cm³/1000S. : +- 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1350
 guide sleeve
 travel mm : 8.50
 Tolerance mm : +- 0.10

Rated speed rpm : 1100
 guide sleeve
 travel mm : 6.45
 Tolerance mm : +- 0.25

Rated speed rpm : 350
 guide sleeve
 travel mm : 1.25
 Tolerance mm : +- 0.25

Rated speed rpm : 650
 guide sleeve
 travel mm : 4.15
 Tolerance mm : +- 0.25

Rated speed rpm : 1460
 guide sleeve
 travel mm : 9.55
 Tolerance mm : +- 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1360
 Rack travel in mm : 16.50
 Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
 Aneroid pressure
 hPa : -

Del. quantity
 cm³/1000 strokes : 18.5
 Tolerance
 cm³/1000 strokes : +- 1.5
 Check tolerance
 cm³/1000S. : +- 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000S. : 3.0

CONTROL LEVER

control lever
 position degree : 112.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 9.70
 Rated speed rpm : 1345
 Tolerance 1/min : +- 5

rack travel mm : 4.00
 Rated speed rpm : 1440
 Tolerance 1/min : +- 15

rack travel mm : 0.50
 Tolerance mm : +- 0.50
 Rated speed rpm : 1550

LOW IDLE

control lever
 position degree : 80.0
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 350
 rack travel mm : 7.65
 Tolerance mm : +- 0.15

Rated speed rpm : 250

CRT mm min. : > 9.50

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
 rack travel mm : 5.10

Tolerance mm : ± 0.30
Rated speed rpm : 1300
rack travel mm : 10.80
Tolerance mm : ± 0.10

Rated speed rpm : 800
rack travel mm : 10.80
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 10.80
Tolerance mm : ± 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 340
rack travel mm : 0.95
Tolerance mm : ± 0.15

Pressure hPa : 250
rack travel mm : 0.60
Tolerance mm : ± 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 270

Check
speed 1/min : > 80
Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1300
Del. quantity
cm³/1000 strokes : 141.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 119.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0

Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 9.70
Rated speed rpm : 1345
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000s. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 18.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 487
Injection pump
Pump designation : PES6P120A720LS7176
: -10
EP type number : 0 412 726 869
Governor
Governor design. : RQV300...1050PA1142
Governor no. : 9 420 080 368

Cust. part No. :

Customer-spec. information

Customer : MBB
Motor : OM447 A
Power kW : 210.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

M16

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 5.25
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 10.50
Tolerance mm : +- 1.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.75
Tolerance mm : +- 0.05

Del. quantity
cm3/1000 strokes : 177.0

Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 4.0

Speed
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
 cm³/1000S. : 9.0
 Del. quantity
 cm³/1000 strokes : 13.0
 Tolerance
 cm³/1000 strokes : +- 3.0
 Check tolerance
 cm³/1000S. : +- 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.40
 Tolerance mm : +- 0.20

Rated speed rpm : 1100
 guide sleeve
 travel mm : 7.65
 Tolerance mm : +- 0.25

Rated speed rpm : 500
 guide sleeve
 travel mm : 3.25
 Tolerance mm : +- 0.25

Rated speed rpm : 900
 guide sleeve
 travel mm : 5.85
 Tolerance mm : +- 0.25

Rated speed rpm : 1210
 guide sleeve
 travel mm : 9.55
 Tolerance mm : +- 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1140
 Rack travel in mm : 16.50
 Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600

Aneroid pressure
 hPa : 600
 Del. quantity
 cm³/1000 strokes : 177.0
 Tolerance
 cm³/1000 strokes : +- 1.0
 Check tolerance
 cm³/1000S. : +- 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 59.0
 tolerance degree : +- 4.0

control lever
 position degree : 114.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 12.00
 Rated speed rpm : 1103
 Tolerance 1/min : +- 8

rack travel mm : 4.00
 Rated speed rpm : 1185
 Tolerance 1/min : +- 15

rack travel mm : 0.75
 Tolerance mm : +- 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 68.0
 tolerance degree : +- 4.0

control lever
 position degree : 13.0
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 6.20
 Tolerance mm : +- 0.20

Rated speed rpm : 100

CRT mm min. : > 8.00

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 12.75
Tolerance mm : ± 0.05

Rated speed rpm : 1050
rack travel mm : 13.05
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 13.05
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

MEASUREMENT

Pressure hPa : 250
rack travel mm : -1.30
Tolerance mm : ± 0.10

Pressure hPa : 380
rack travel mm : -0.40
Tolerance mm : ± 0.10

Pressure hPa : 690

Pressure hPa : 770
rack travel mm : 0.30
Tolerance mm : ± 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check speed 1/min : > 80
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050

Del. quantity
cm³/1000 strokes : 182.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1000
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 186.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 132.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 1103
Tolerance 1/min : ± 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : ± 10.0

Check tolerance
cm³/1000S. : +- 4.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.04.96
Test oil : ISO 4113
Combination No. : 9 400 087 493
Injection pump
Pump designation : PES6P120A720LS7114
: -13
EP type number : 0 412 726 867
Governor
Governor design. : RQ300/1050PA911-5
Governor no. : 9 420 080 375

Cust. part No. : 0250747002

Customer-spec. information
Customer : MBB
Motor : OM447 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 067
Outside diameter : 6.0

M20

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 6- 2- 4- 1- 5-
: 3
Phasing : 0-60-120-180-240
: -300

BASIC SETTING

Rated speed rpm : 600
Rack travel in mm : 12.40
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 195.5
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 6.00
 Tolerance mm : + 0.20
 Del. quantity
 cm³/1000 strokes : 13.5
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 2.95
 Tolerance mm : + 0.15
 Rated speed rpm : 1100
 guide sleeve
 travel mm : 6.70
 Tolerance mm : + 0.20
 Rated speed rpm : 600
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10
 Rated speed rpm : 1000
 guide sleeve
 travel mm : 6.40
 Tolerance mm : + 0.10
 Rated speed rpm : 1175
 guide sleeve
 travel mm : 9.75
 Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 600
 Rack travel in mm : 20.00
 Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1050
 Del. quantity
 cm³/1000 strokes : 195.5
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

CONTROL LEVER

control lever
 position degree : 40.0
 tolerance degree : + 4.0
 control lever
 position degree : 101.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.30
 Rated speed rpm : 1103
 Tolerance 1/min : + 8
 rack travel mm : 4.00
 Rated speed rpm : 1165
 Tolerance 1/min : + 15
 rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 74.0
 tolerance degree : + 4.0
 control lever
 position degree : 11.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.00
Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 380
Tolerance 1/min : +- 20

Rated speed rpm : 100

CRT mm min. : > 9.00

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 12.40
Tolerance mm : +- 0.10

Rated speed rpm : 1050
rack travel mm : 12.40
Tolerance mm : +- 0.10

Rated speed rpm : 750
rack travel mm : 12.40
Tolerance mm : +- 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

MEASUREMENT

Pressure hPa : 300
rack travel mm : -1.80
Tolerance mm : +- 0.10

Pressure hPa : 400
rack travel mm : -0.90
Tolerance mm : +- 0.10

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1050

M22

Del. quantity
cm3/1000 strokes : 195.0
Tolerance
cm3/1000 strokes : +- 2.0
Check tolerance
cm3/1000S. : +- 5.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 198.5
Tolerance
cm3/1000 strokes : +- 2.0
Check tolerance
cm3/1000S. : +- 5.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 126.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

BREAKAWAY

Rack travel in mm : 11.30
Rated speed rpm : 1103
Tolerance 1/min : +- 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 230.0
Tolerance
cm3/1000 strokes : +- 10.0

Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.00
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 13.5
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.04.96
 Test oil : ISO 4113
 Combination No. : 9 400 093 227
 Injection pump
 Pump designation : PES6A85D410RS2756
 EP type number : 9 400 093 006
 Governor
 Governor design. : RSV325...1150A1C1168
 : L
 Governor no. : 9 420 083 293
 Cust. part No. :

Customer-spec. information
 Customer : DEUTZ-ARGENTINA
 Motor : BF6L913
 Power KW : 118.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
 Test oil inlet
 temp. °C : 40
 Tolerance °C : +- 2.0
 Overflow valve : 1 419 992 198
 Inlet press. bar : 1.5
 Test nozzle holde
 assembly : 0 681 343 009
 Opening pressure
 bar : 173.5
 Tolerance bar : +- 1.5
 Test lines : 1 680 750 003
 Outside diameter : 6.0

M24

x inside diameter : 2.0
 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure bar : 32.0
 Tolerance bar : +- 1.0
 Prestroke mm : 1.95
 Tolerance mm : +- 0.05
 Check
 tolerance mm : +- 0.10
 Rack travel in mm : 10.50
 Tolerance mm : +- 1.50
 Firing order : 1- 5- 3- 6- 2-
 : 4
 Phasing : 0-60-120-180-240
 : -300

BASIC SETTING

Rated speed rpm : 1150
 Rack travel in mm : 11.35
 Tolerance mm : +- 0.05
 Del. quantity
 cm³/1000 strokes : 73.0
 Tolerance
 cm³/1000 strokes : +- 0.5
 Check tolerance
 cm³/1000s. : +- 2.5
 Spreed
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000s. : 7.0

Del. quantity
 cm³/1000 strokes : 11.0
 Tolerance
 cm³/1000 strokes : +- 2.0
 Check tolerance
 cm³/1000S. : +- 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 4.5
 Check tolerance
 cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
 Rack travel in mm : 0.65
 Tolerance mm : +- 0.35
 governor spring
 pre-tension
 click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 73.0
 Tolerance
 cm³/1000 strokes : +- 0.5
 Check tolerance
 cm³/1000S. : +- 2.5
 Spreed
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 7.0

CONTROL LEVER

control lever
 position degree : 114.0
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 10.30
 Rated speed rpm : 1195

M25

Tolerance 1/min : +- 5
 rack travel mm : 4.00
 Rated speed rpm : 1235
 Tolerance 1/min : +- 15
 rack travel mm : 0.85
 Tolerance mm : +- 0.55
 Rated speed rpm : 1380

LOW IDLE

control lever
 position degree : 77.0
 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
 rack travel mm : 7.50

Testing:

Rated speed rpm : 325
 rack travel mm : 8.00
 Tolerance mm : +- 0.10

rack travel mm : 2.00
 Rated speed rpm : 570
 Tolerance 1/min : +- 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1150
 rack travel mm : 11.35
 Tolerance mm : +- 0.05

Rated speed rpm : 500
 rack travel mm : 13.05
 Tolerance mm : +- 0.05

Rated speed rpm : 800
 rack travel mm : 12.35
 Tolerance mm : +- 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 79.5
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 3.5

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 76.5
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 3.5

BREAKAWAY

Rack travel in mm : 10.30
Rated speed rpm : 1195
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : ± 1.00

LOW IDLE

Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.04.96
Test oil : ISO 4113
Combination No. : 9 400 093 228
Injection pump
Pump designation : PES5A80D410RS2526
EP type number : 9 400 093 007
Governor
Governor design. : RSV325...1075A1C1167
: L
Governor no. : 9 420 083 292
Cust. part No. :

Customer-spec. information
Customer : DEUTZ ARG.
Motor : F5L913
Power KW : 87.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 003
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.95
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

BASIC SETTING

Rated speed rpm : 1075

Rack travel in mm : 9.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 53.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.0

Speed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

Del. quantity
cm³/1000 strokes : 7.5
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
Rack travel in mm : 0.65
Tolerance mm : ± 0.35
governor spring
pre-tension
click setting x : 6.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1075
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 53.0
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 117.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 8.40
Rated speed rpm : 1120
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1165
Tolerance 1/min : ± 15
rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1320

LOW IDLE

control lever
position degree : 84.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 6.00

Testing:

Rated speed rpm : 325
rack travel mm : 6.50
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 540
Tolerance 1/min : ± 30

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1075
rack travel mm : 9.45
Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 11.25
Tolerance mm : ± 0.05

Rated speed rpm : 800
rack travel mm : 10.55
Tolerance mm : ± 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 62.5
Tolerance
cm³/1000 strokes : +- 1.5
Check tolerance
cm³/1000S. : +- 3.0

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 58.0
Tolerance
cm³/1000 strokes : +- 1.5
Check tolerance
cm³/1000S. : +- 3.0

BREAKAWAY

Rack travel in mm : 8.40
Rated speed rpm : 1120
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : +- 1.00

LOW IDLE

Del. quantity
cm³/1000 strokes : 7.5
Tolerance
cm³/1000 strokes : +- 1.5
Check tolerance
cm³/1000S. : +- 3.5
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.04.96
Test oil : ISO 4113
Combination No. : 9 400 093 229
Injection pump
Pump designation : PES4A80D41ORS2523
EP type number : 9 400 093 008
Governor
Governor design. : RSV325...1075A1C1167
: L
Governor no. : 9 420 083 292
Cust. part No. :

Customer-spec. information
Customer : DEUTZ ARG.
Motor : F4L913
Power KW : 56.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 003
Outside diameter : 6.0

N02

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 1.95
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 3- 4- 2
Phasing : 0-90-180-270

BASIC SETTING

Rated speed rpm : 1075
Rack travel in mm : 10.25
Tolerance mm : ± 0.05
Del. quantity
cm3/1000 strokes : 60.5
Tolerance
cm3/1000 strokes : ± 0.5
Check tolerance
cm3/1000s. : ± 2.0
Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000s. : 4.0

Del. quantity
cm³/1000 strokes : 7.5
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
Rack travel in mm : 0.65
Tolerance mm : ± 0.35
governor spring
pre-tension
click setting x : 7.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1075
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 60.5
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 119.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 9.20
Rated speed rpm : 1120
Tolerance 1/min : ± 5

NO3

rack travel mm : 4.00
Rated speed rpm : 1175
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1320

LOW IDLE

control lever
position degree : 85.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 6.00

Testing:

Rated speed rpm : 325
rack travel mm : 6.50
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 550
Tolerance 1/min : ± 30

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1075
rack travel mm : 10.25
Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 11.05
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 10.65
Tolerance mm : ± 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 61.0
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 3.0

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 59.0
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 3.0

BREAKAWAY

Rack travel in mm : 9.20
Rated speed rpm : 1120
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : ± 1.00

LOW IDLE

Del. quantity
cm³/1000 strokes : 7.5
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.04.96
Test oil : ISO 4113

Combination No. : 0 400 074 885

Injection pump
Pump designation : PES4M55C32ORS167
EP type number : 0 410 054 960

Governor
Governor design. : RSF400/2000M56-14
Governor no. : 0 420 021 271

Cust. part No. :

Customer-spec. information
Customer : DPICO
Motor : OM601-2.3l (Exp)
Power KW : 58.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

N05

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

°NW after s.o.d. : 15.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 38.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Speed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0
Rated speed rpm : 400
Rack travel in mm : 5.00
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 6.5
Tolerance
cm³/1000 strokes : ± 0.5
Spreed
Tolerance
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

—————
IDLE STAGE

Rack travel in mm : 6.25
Tolerance mm : ± 0.25

—————
FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1100
Del. quantity
cm³/1000 strokes : 38.5
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 1.5
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

—————
RATED SPEED

control lever
position degree : 50.0
rack travel mm : 7.40
Rated speed rpm : 2250
rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 2550

—————
SET IDLE CONTROL LEVER POSITION

NO6

Rated speed rpm : 1000
CRT mm max. : 1.45

—————
LOW IDLE

control lever
position degree : 14.0
tolerance degree : ± 2.0

Setting point w/out bumper spring
Rated speed rpm : 400
rack travel mm : 5.00

SET IDLE AUXILIARY SPRING

Rated speed rpm : 500
rack travel mm : 3.40
Tolerance mm : ± 0.10

Load pick-up

Rated speed rpm : 250
CRT mm min. : 12.50
Rated speed rpm : 1000
CRT mm max. : 1.45
rack travel mm : 5.00
Rated speed rpm : 400

—————
TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.15
Tolerance mm : ± 0.05
Rated speed rpm : 1800
rack travel mm : 11.90
Tolerance mm : ± 0.10
Rated speed rpm : 2000
rack travel mm : 11.80
Tolerance mm : ± 0.10

—————
ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 940

rack travel mm : -0.10
Tolerance mm : +- 0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.40
Tolerance mm : +- 0.10

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -1.50
Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1800
Del. quantity
cm³/1000 strokes : 40.8
Tolerance
cm³/1000 strokes : +- 0.8
Check tolerance
cm³/1000S. : +- 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2000
Spreed
Del. quantity
cm³/1000 strokes : 41.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100

NO7

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.60
Tolerance mm : +- 1.50
Del. quantity
cm³/1000 strokes : 59.0
Tolerance
cm³/1000 strokes : +- 4.0
Check tolerance
cm³/1000S. : +- 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : +- 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

Grad : > 47.00

Grad : < 44.50

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 14.0
tolerance degree : +- 2.0

Rated speed rpm : 425

Rack travel in mm : 8.50
Tolerance mm : +- 0.80
Del. quantity
cm³/1000 strokes : 21.5
Tolerance
cm³/1000 strokes : +- 3.5
Check tolerance
cm³/1000S. : +- 4.5
Vacuum hPa : 400.0

SETTING/TESTING ELECTRONIC IDLE
REGULATION (ELR)

control lever
position degree : 14.0
tolerance degree : \pm 2.0

control lever
position degree : 50.0

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 400

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.04.96
Test oil : ISO 4113
Combination No. : 0 400 075 922
Injection pump
Pump designation : PES5M55C32ORS168
EP type number : 0 410 055 978
Governor
Governor design. : RSF385/2000M56-15
Governor no. : 0 420 021 272

Cust. part No. :

Customer-spec. information
Customer : DPICO
Motor : OM602-2.9L
Power KW : 70.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 469 990 351
Inlet press. bar : 1.0
Test nozzle holde
assembly : 1 688 901 111
Opening pressure
bar : 148.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

N09

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 21.00
Tolerance mm : ± 1.00
Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

°NW after s.o.d. : 15.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.15
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 38.5

Tolerance
cm3/1000 strokes : ± 0.5

Check tolerance
cm3/1000S. : ± 1.5

Spread
Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0
Rated speed rpm : 385
Rack travel in mm : 5.70
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 9.0
Tolerance
cm³/1000 strokes : ± 0.5
Spreed
Tolerance
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

—————
IDLE STAGE

Rack travel in mm : 6.25
Tolerance mm : ± 0.25

—————
FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1100
Del. quantity
cm³/1000 strokes : 38.5
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 1.5
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

—————
RATED SPEED

control lever
position degree : 50.0
rack travel mm : 7.40
Rated speed rpm : 2250
rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 2550

—————
SET IDLE CONTROL LEVER POSITION

N10

Rated speed rpm : 1000
CRT mm max. : 1.45

—————
LOW IDLE

control lever
position degree : 14.0
tolerance degree : ± 2.0

Setting point w/out bumper spring
Rated speed rpm : 385
rack travel mm : 5.70

SET IDLE AUXILIARY SPRING

Rated speed rpm : 500
rack travel mm : 3.70
Tolerance mm : ± 0.10

Load pick-up

Rated speed rpm : 250
CRT mm min. : 12.50

Rated speed rpm : 1000
CRT mm max. : 1.45
rack travel mm : 5.70
Rated speed rpm : 385

—————
TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.15
Tolerance mm : ± 0.05

Rated speed rpm : 1800
rack travel mm : 12.00
Tolerance mm : ± 0.10

Rated speed rpm : 2000
rack travel mm : 11.80
Tolerance mm : ± 0.10

—————
ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 940

rack travel mm : -0.10
Tolerance mm : +- 0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.40
Tolerance mm : +- 0.10

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -1.50
Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1800
Del. quantity
cm³/1000 strokes : 40.8
Tolerance
cm³/1000 strokes : +- 0.8
Check tolerance
cm³/1000S. : +- 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2000
Spreed
Del. quantity
cm³/1000 strokes : 41.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.60
Tolerance mm : +- 1.50
Del. quantity
cm³/1000 strokes : 59.0
Tolerance
cm³/1000 strokes : +- 4.0
Check tolerance
cm³/1000S. : +- 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 10.3
Check tolerance
cm³/1000S. : +- 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

Grad : > 47.00

Grad : < 44.50

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 14.0
tolerance degree : +- 2.0

Rated speed rpm : 400

Rack travel in mm : 8.60
Tolerance mm : +- 0.80
Del. quantity
cm³/1000 strokes : 21.5
Tolerance
cm³/1000 strokes : +- 3.5
Check tolerance
cm³/1000S. : +- 4.5
Vacuum hPa : 400.0

SETTING/TESTING ELECTRONIC IDLE
REGULATION (ELR)

control lever
position degree : 14.0
tolerance degree : ± 2.0

control lever
position degree : 50.0

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 385

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.04.96
Test oil : ISO 4113
Combination No. : 0 400 864 095
Injection pump
Pump designation : PES4A95D410/3RS2789
EP type number : 0 410 894 995
Governor
Governor design. : RSV325...1175A5C2163
: -7L
Governor no. : 0 420 232 590
Cust. part No. :

Customer-spec. information
Customer : KHD
Motor : F4L913
Power KW : 55.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 3- 4- 2
Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1175
Rack travel in mm : 11.95
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 75.5
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 3.0
Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
 cm³/1000S. : 8.0
 Rated speed rpm : 325
 Rack travel in mm : 9.40
 Tolerance mm : ± 0.10
 Del. quantity
 cm³/1000 strokes : 13.0
 Tolerance
 cm³/1000 strokes : ± 2.0
 Check tolerance
 cm³/1000S. : ± 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
 WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : ± 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1175
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 75.5
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 3.0
 Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 8.0

CONTROL LEVER

control lever
 position degree : 101.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.90
 Rated speed rpm : 1220
 Tolerance 1/min : ± 5

rack travel mm : 4.00
 Rated speed rpm : 1280
 Tolerance 1/min : ± 15

rack travel mm : 0.85
 Tolerance mm : ± 0.55
 Rated speed rpm : 1430

rack travel mm : 4.00
 Rated speed rpm : 1295

LOW IDLE

control lever
 position degree : 69.0
 tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
 rack travel mm : 8.90

Testing:

Rated speed rpm : 325
 rack travel mm : 9.40
 Tolerance mm : ± 0.10

rack travel mm : 2.00
 Rated speed rpm : 500
 Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.50

TORQUE CONTROL

Rated speed rpm : 1175
 rack travel mm : 11.95
 Tolerance mm : ± 0.05

Rated speed rpm : 800
 rack travel mm : 12.35
 Tolerance mm : ± 0.05

Rated speed rpm : 1025
 rack travel mm : 12.15
 Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 70.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 10.90
Rated speed rpm : 1220
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : ± 0.75
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 12.5

LOW IDLE

Rated speed rpm : 325
rack travel mm : 9.40
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.04.96
Test oil : ISO 4113
Combination No. : 0 402 046 872
Injection pump
Pump designation : PES6P120A320RS3337
EP type number : 0 412 026 770
Governor
Governor design. : RQV300...1250PA1246K
Governor no. : 0 421 815 480
Cust. part No. : CCEP 5155A 66-217

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR 06-02-26 U4
Power KW : 111.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 2 417 413 084
Inlet press. bar : 2.5
Tolerance bar : + 0.1
Overflow quantity min. l/h : 135
Tolerance l/h : + 10.0
Test nozzle holder assembly : 1 688 901 101
Opening pressure bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 4.10
Tolerance mm : + 0.05
Check tolerance mm : + 0.10
Rack travel in mm : 11.00
Tolerance mm : + 0.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check tolerance °NW : + 0.50
Start of delivery mark
°NW after s.o.d. : 0.08
Tolerance : + 0.50
Check tolerance °NW : + 0.75
Barrel no. : 1
Beginning of delivery difference
betw. rack trav. mm : 21.00
and maximum rack travel : 19.50
Difference °CS : 2.00

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.60
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 140.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -5.80
Tolerance mm : + 0.20

Del. quantity
cm³/1000 strokes : 29.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 5.0

Spreed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.31
Tolerance mm : + 0.20

Rated speed rpm : 1333
guide sleeve
travel mm : 10.40
Tolerance mm : + 0.15

Rated speed rpm : 900

guide sleeve
travel mm : 6.50
Tolerance mm : + 0.25

Rated speed rpm : 530
guide sleeve
travel mm : 3.77
Tolerance mm : + 0.25

Rated speed rpm : 1580
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1400

Rack travel in mm : 10.50
Tolerance mm : + 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 140.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 296.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1325
Tolerance 1/min : + 5

rack travel mm : -6.60
Rated speed rpm : 1420
Tolerance 1/min : + 15

rack travel mm : -10.10
Tolerance mm : + 0.50

Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 242.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -5.80
Tolerance mm : + 0.10

Rated speed rpm : 200
CRT mm min. : < -4.80

Rated speed rpm : 380

TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 750
rack travel mm : -1.60
Tolerance mm : + 0.10

Rated speed rpm : 350
rack travel mm : -2.40
Tolerance mm : + 0.15

START CUT-OUT

Rated speed rpm : > 130
Rated speed rpm : < 225

Check
speed 1/min : > 110
Check
speed 1/min : < 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 102.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

N18

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1325
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 108.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : -5.80
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 29.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.04.96
Test oil : ISO 4113
Combination No. : 0 402 066 706
Injection pump
Pump designation : PES6P120A12ORS3358
EP type number : 0 412 026 784
Governor
Governor design. : RSV475...1250P2A613
: -1
Governor no. : 0 421 833 505
Cust. part No. : 3927357

Customer-spec. information
Customer : CDC
Motor : 6BTA-590 ELITE
Power KW : 138.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 086
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 103
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

N19

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery blocking
°NW after s.o.d. : 7.75
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250
Rack travel in mm : 11.30
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 140.0

<hr/>	
Tolerance	
cm ³ /1000 strokes	: ± 1.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: ± 3.0
<hr/>	
Spread	
Tolerance	
cm ³ /1000 strokes	: 4.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: 7.5
<hr/>	
Rated speed rpm	: 475
<hr/>	
Rack travel in mm	: 5.40
Tolerance mm	: ± 0.30
Del. quantity	
cm ³ /1000 strokes	: 21.0
Tolerance	
cm ³ /1000 strokes	: ± 2.0
Check tolerance	
cm ³ /1000S.	: ± 4.5
Spread	
Tolerance	
cm ³ /1000 strokes	: 6.0
Check tolerance	
cm ³ /1000S.	: 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
<hr/>	
governor spring	
pre-tension	
click setting x	: 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1250
Aneroid pressure	
hPa	: 1500
Del. quantity	
cm ³ /1000 strokes	: 140.0
Tolerance	
cm ³ /1000 strokes	: ± 1.0
Check tolerance	
cm ³ /1000S.	: ± 3.0
Spread	

N20

Tolerance	
cm ³ /1000 strokes	: 4.0
Check tolerance	
cm ³ /1000S.	: 7.5

CONTROL LEVER

control lever	
position degree	: 109.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 10.30
Rated speed rpm	: 1295
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1375
Tolerance 1/min	: ± 15

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1500

LOW IDLE

control lever	
position degree	: 84.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm	: 475
rack travel mm	: 5.40
Tolerance mm	: ± 0.10

rack travel mm	: 2.00
Rated speed rpm	: 570
Tolerance 1/min	: ± 30

SET IDLE AUXILIARY SPRING

rack travel mm	: 2.00
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TORQUE CONTROL

Rated speed rpm	: 1250
rack travel mm	: 11.30
Tolerance mm	: ± 0.05

Rated speed rpm	: 750
rack travel mm	: 11.30
Tolerance mm	: ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 11.30
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.00
Tolerance mm : \pm 0.20

Rated speed rpm : 500

Pressure hPa : 900
rack travel mm : 10.75
Tolerance mm : \pm 0.20

Pressure hPa : 560
rack travel mm : 9.55
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 157.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 97.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

BREAKAWAY

Rack travel in mm : 10.30
Rated speed rpm : 1295
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000s. : \pm 25.0

LOW IDLE

Rated speed rpm : 475
rack travel mm : 5.40
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.03.96
Test oil : ISO 4113

Combination No. : 0 402 646 756

Injection pump
Pump designation : PE6P120A320LS7834
: -10
EP type number : 0 412 626 853

Governor
Governor design. : RQV300...1050PA1168
: -6
Governor no. : 0 421 814 138

Cust. part No. : 0260743902

Customer-spec. information
Customer : MB-NFZ
Motor : OM401 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance L/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

N22

Test lines : 1 680 750 075
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark
Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.30
Tolerance mm : +- 0.30

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 6.0

Spreed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.29
Tolerance mm : +- 0.20

Rated speed rpm : 1108
guide sleeve
travel mm : 8.53
Tolerance mm : +- 0.15

Rated speed rpm : 558
guide sleeve
travel mm : 4.53
Tolerance mm : +- 0.25

Rated speed rpm : 608
guide sleeve
travel mm : 5.03
Tolerance mm : +- 0.25

Rated speed rpm : 820
guide sleeve
travel mm : 6.13
Tolerance mm : +- 0.25

Rated speed rpm : 1183
guide sleeve
travel mm : 10.00
Tolerance mm : +- 0.25

Rated speed rpm : 1280
guide sleeve
travel mm : 11.50
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1145
Rack travel in mm : 13.80
Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 121.0
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 13.80
Rated speed rpm : 1095
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1190
Tolerance 1/min : +- 15

rack travel mm : 0.75
Tolerance mm : +- 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 60.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 4.50
Tolerance mm : ± 0.10

Rated speed rpm : 200

CRT mm min. : > 6.30

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 14.80
Tolerance mm : ± 0.05

Rated speed rpm : 1050
rack travel mm : 14.80
Tolerance mm : ± 0.10

Rated speed rpm : 700
rack travel mm : 14.80
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 14.80
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.50
Tolerance mm : ± 0.15

Rated speed rpm : 400

Pressure hPa : 400
rack travel mm : 12.90
Tolerance mm : ± 0.20

N24

Pressure hPa : 600
rack travel mm : 14.15
Tolerance mm : ± 0.20

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 229.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 129.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

BREAKAWAY

Rack travel in mm : 13.80
Rated speed rpm : 1095
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.30
Tolerance mm : ± 0.30
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet